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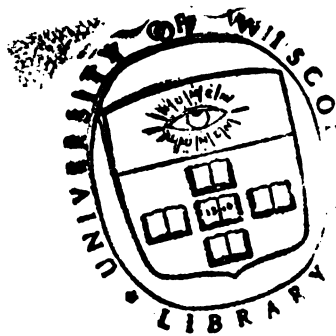
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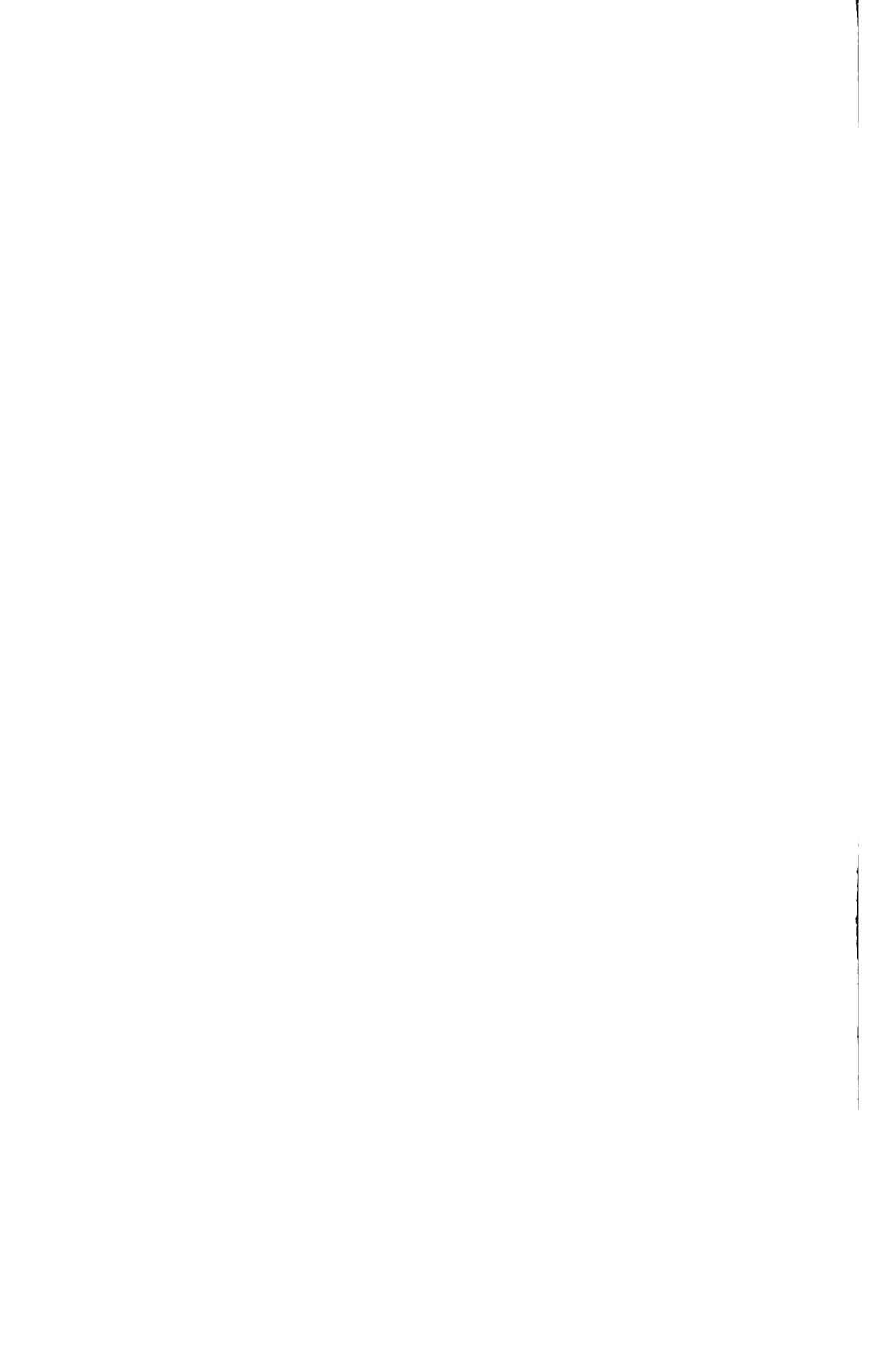
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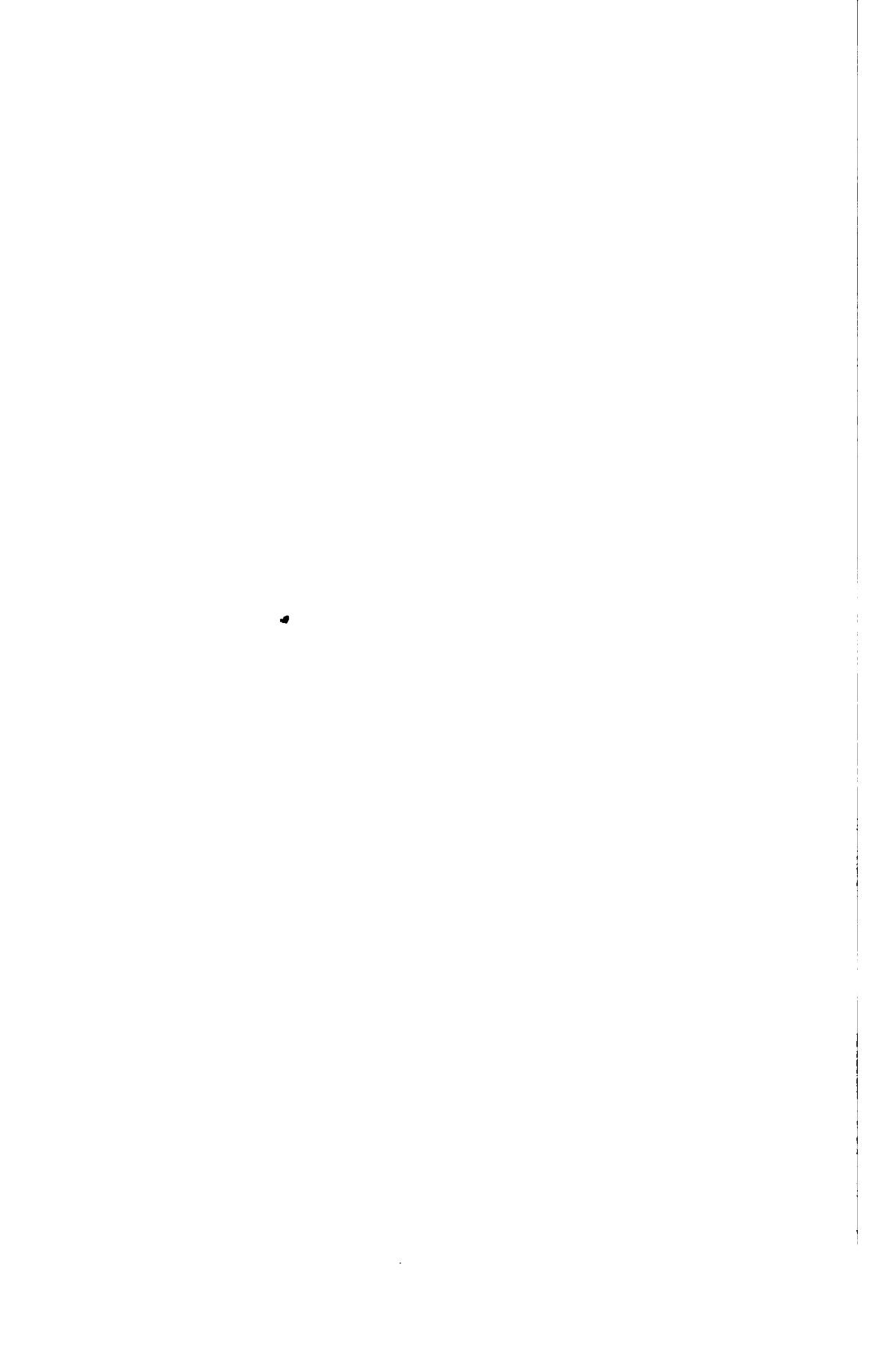
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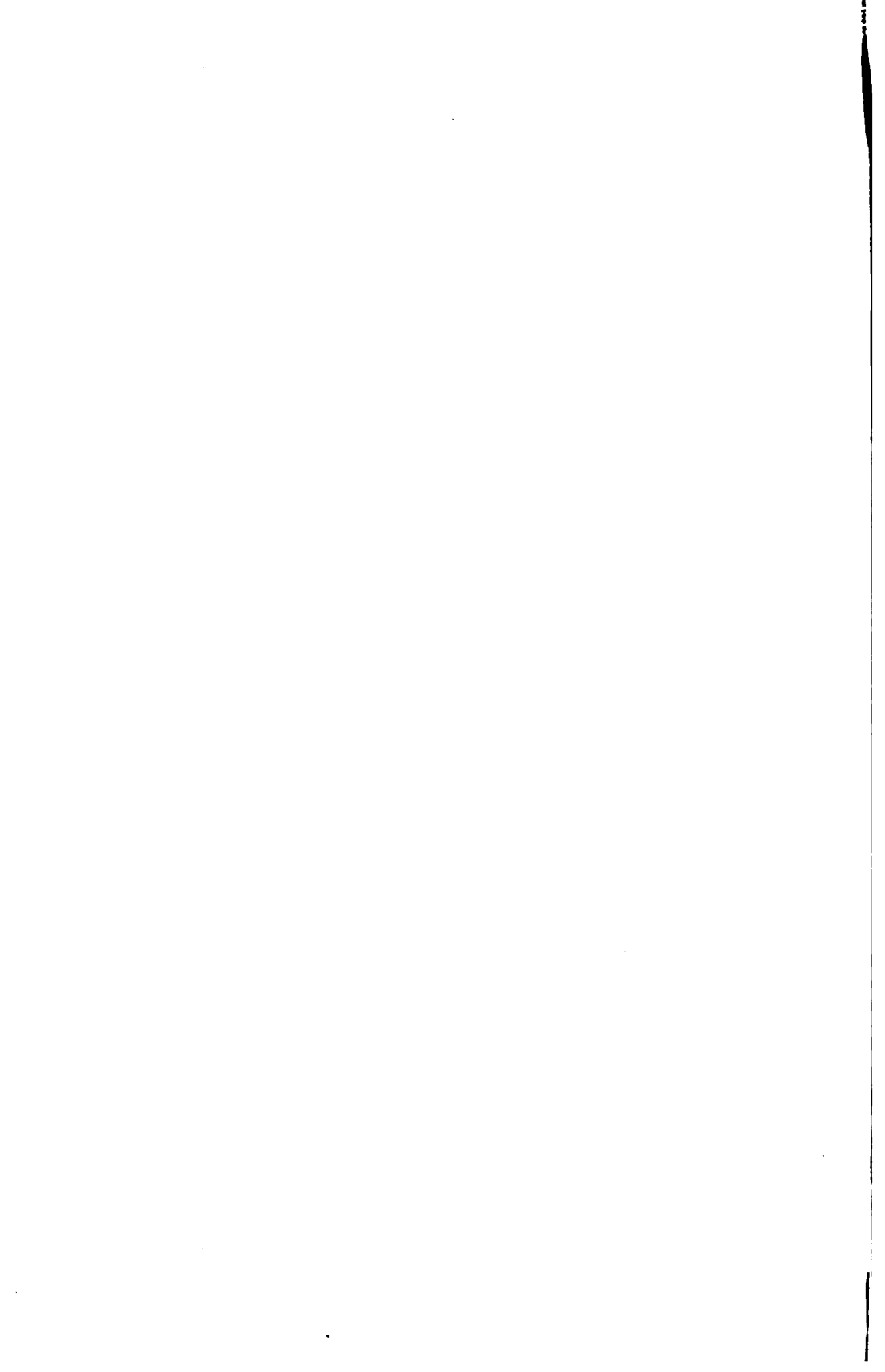


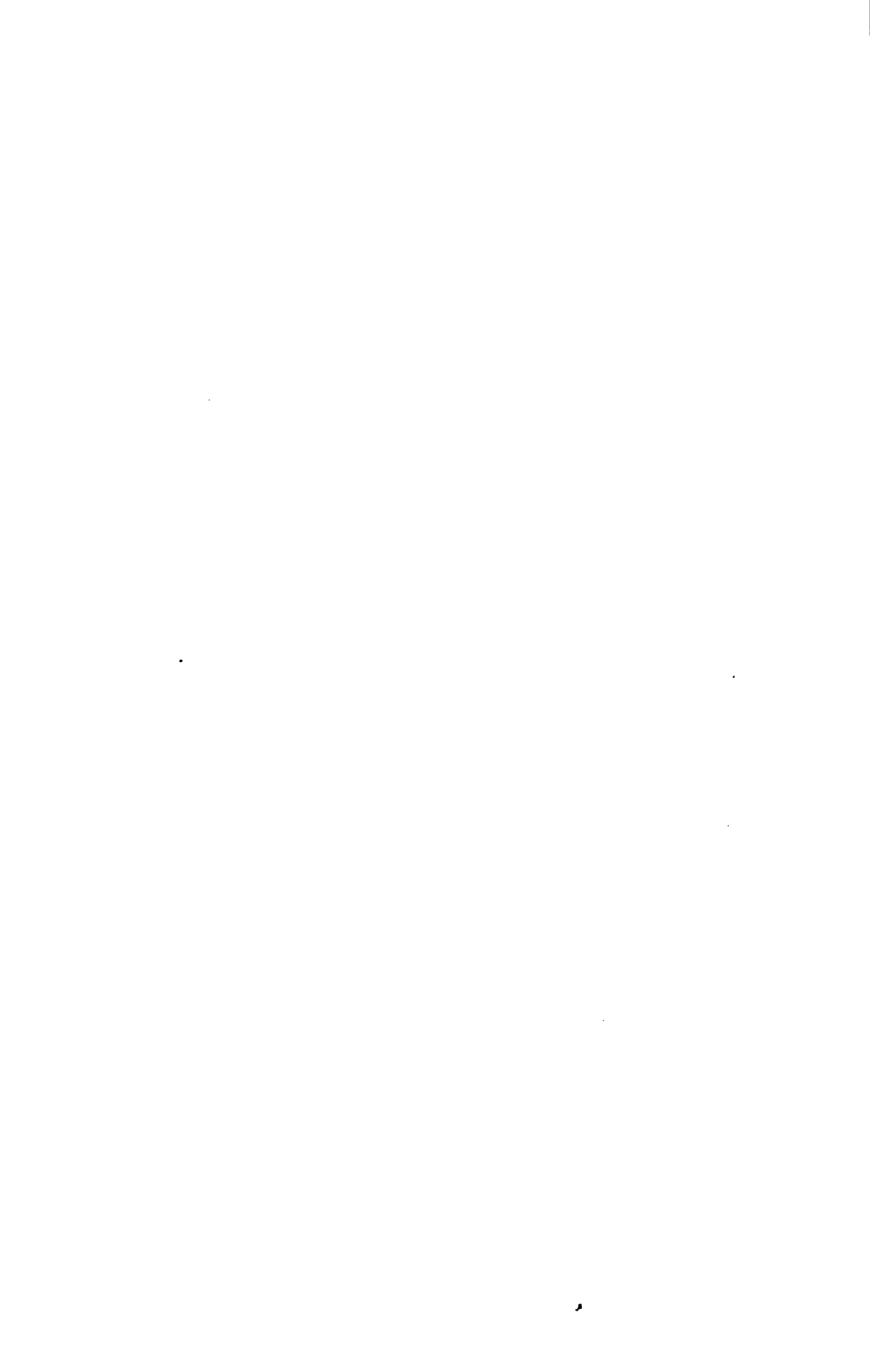






AUTOBIOGRAPHY







Dr. Bain in 1882.

FROM THE PAINTING BY SIR GEORGE REID, P.R.S.A.

AUTOBIOGRAPHY

BY

ALEXANDER BAIN, LL.D.

PROFESSOR OF LOGIC AND ENGLISH, UNIVERSITY OF ABERDEEN

(WITH SUPPLEMENTARY CHAPTER)

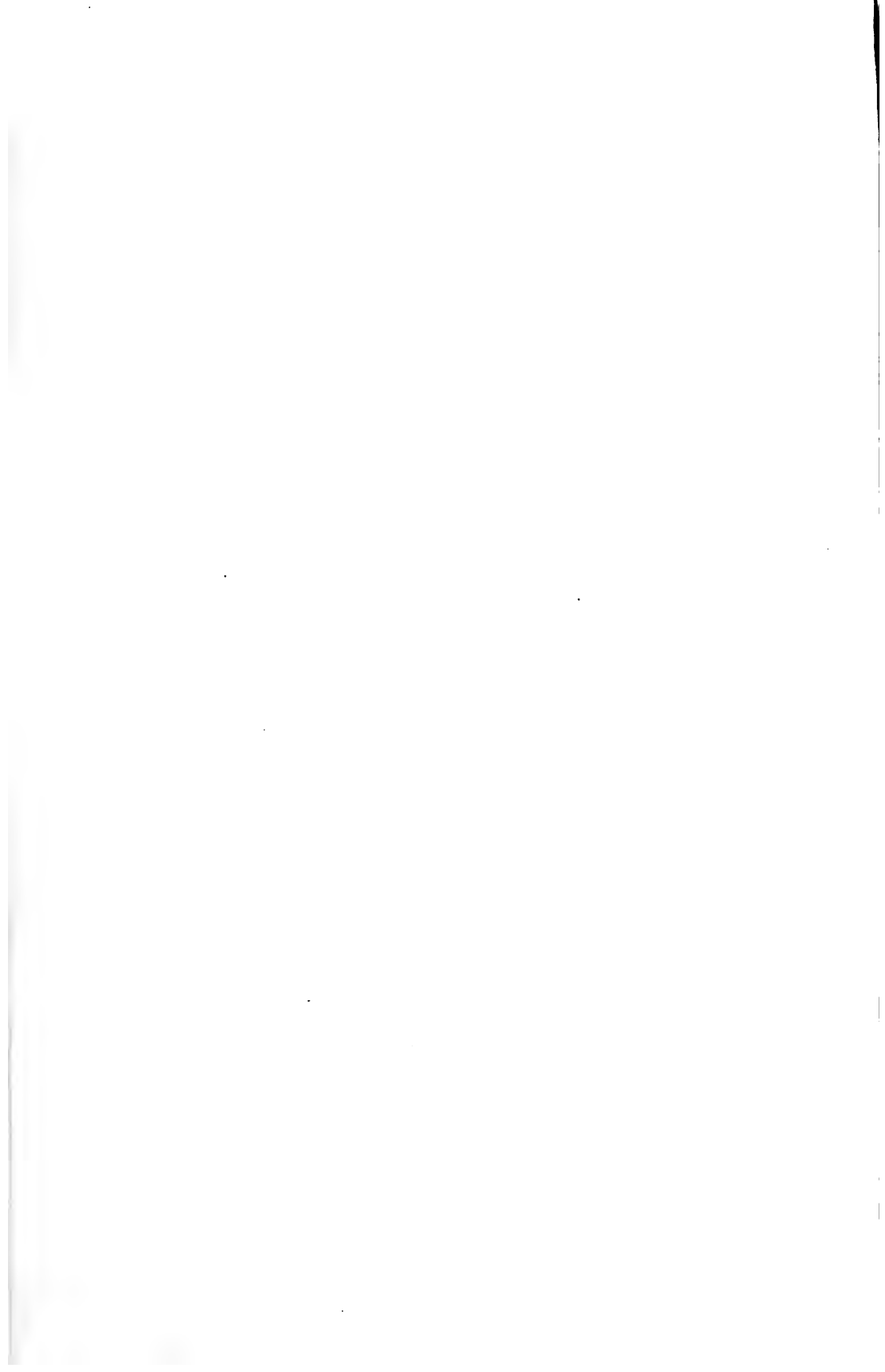
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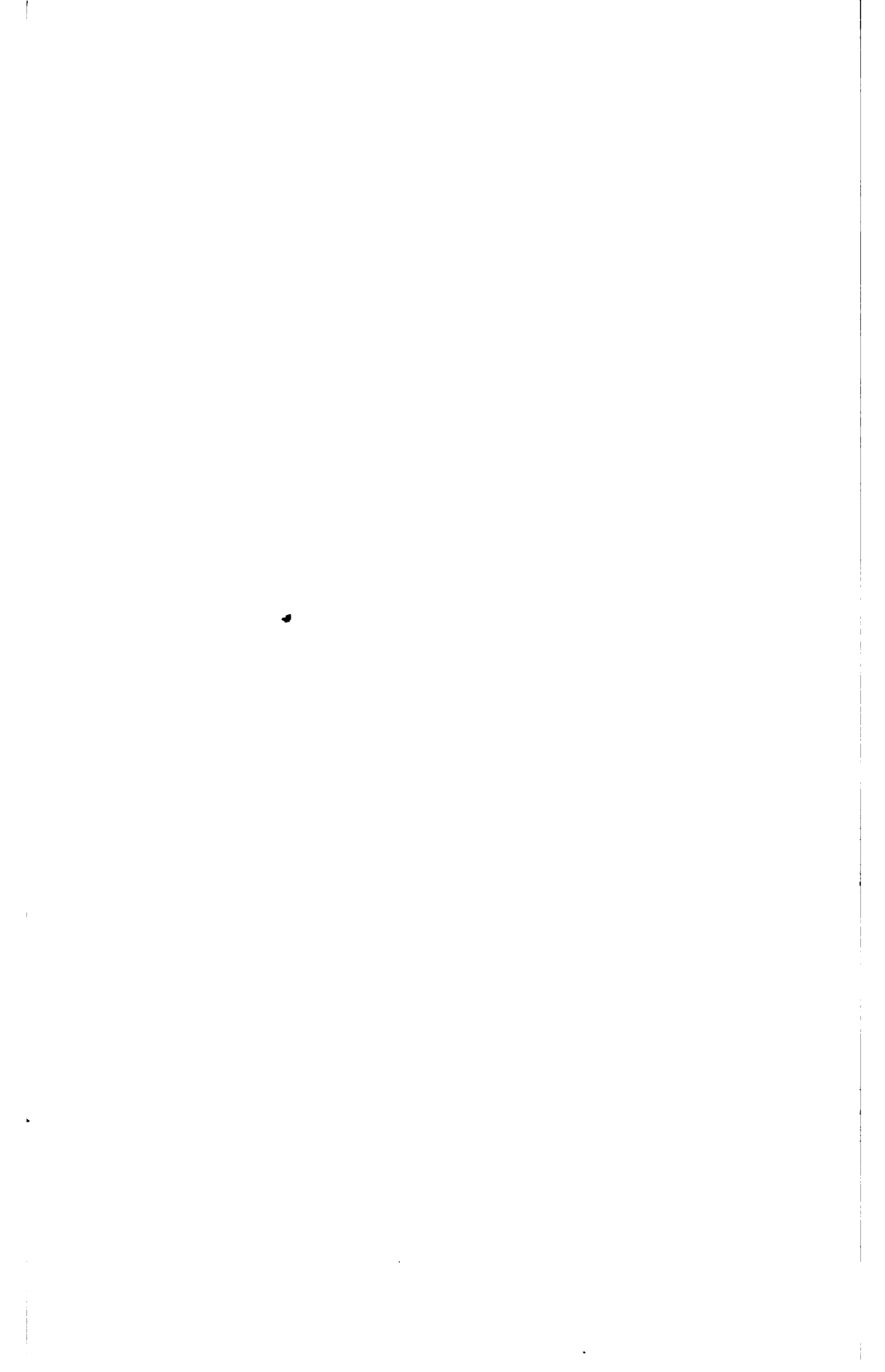
PREPARATORY NOTE OF EXPLANATION.

THE following are the objects I had in view in the present volume :—

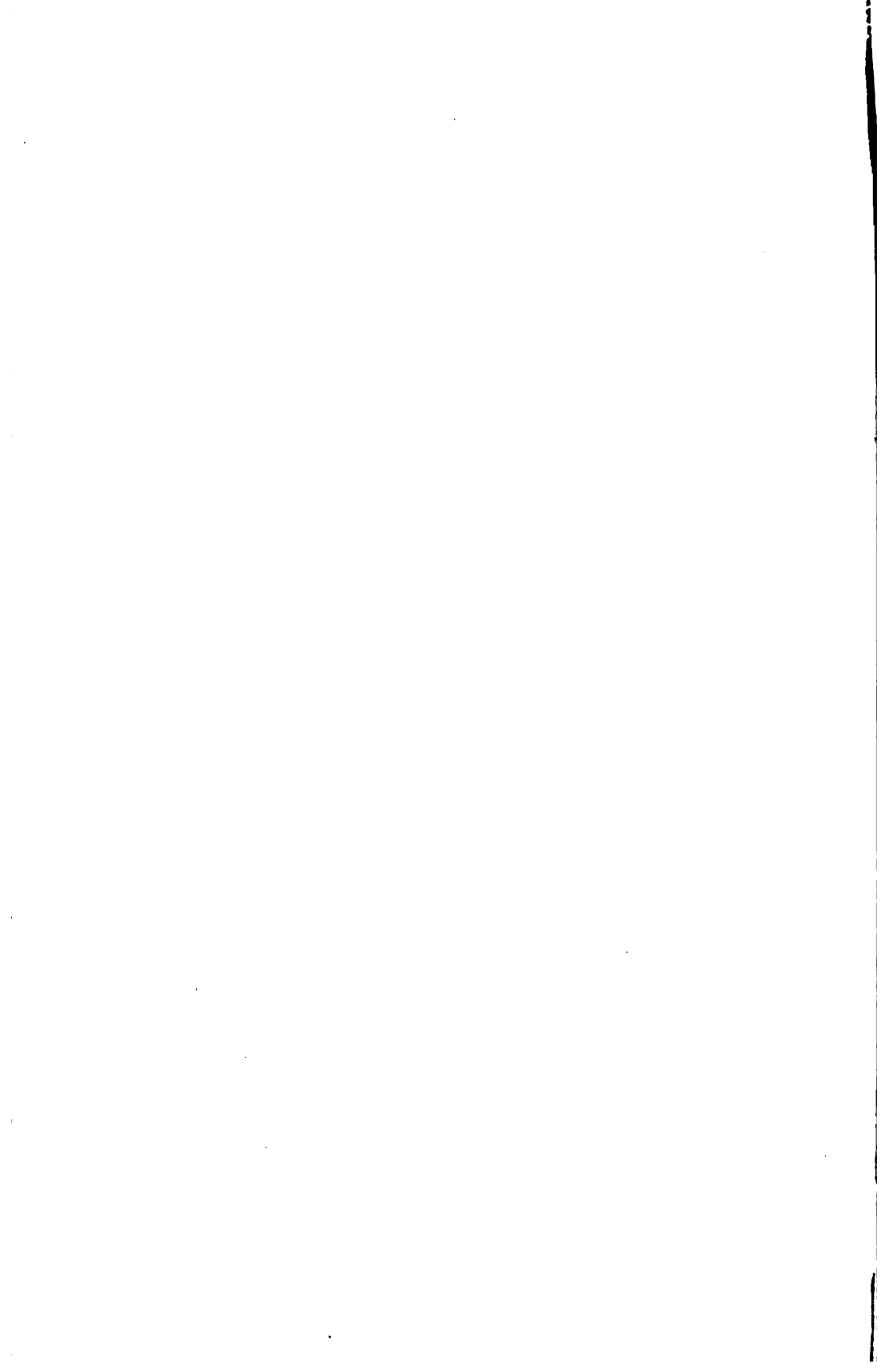
I. To acknowledge indebtedness for assistance rendered in numerous forms and by many individuals in the varying exigencies of my career. In the absence of such assistance, I should have probably failed to accomplish the work and reach the position finally attained.

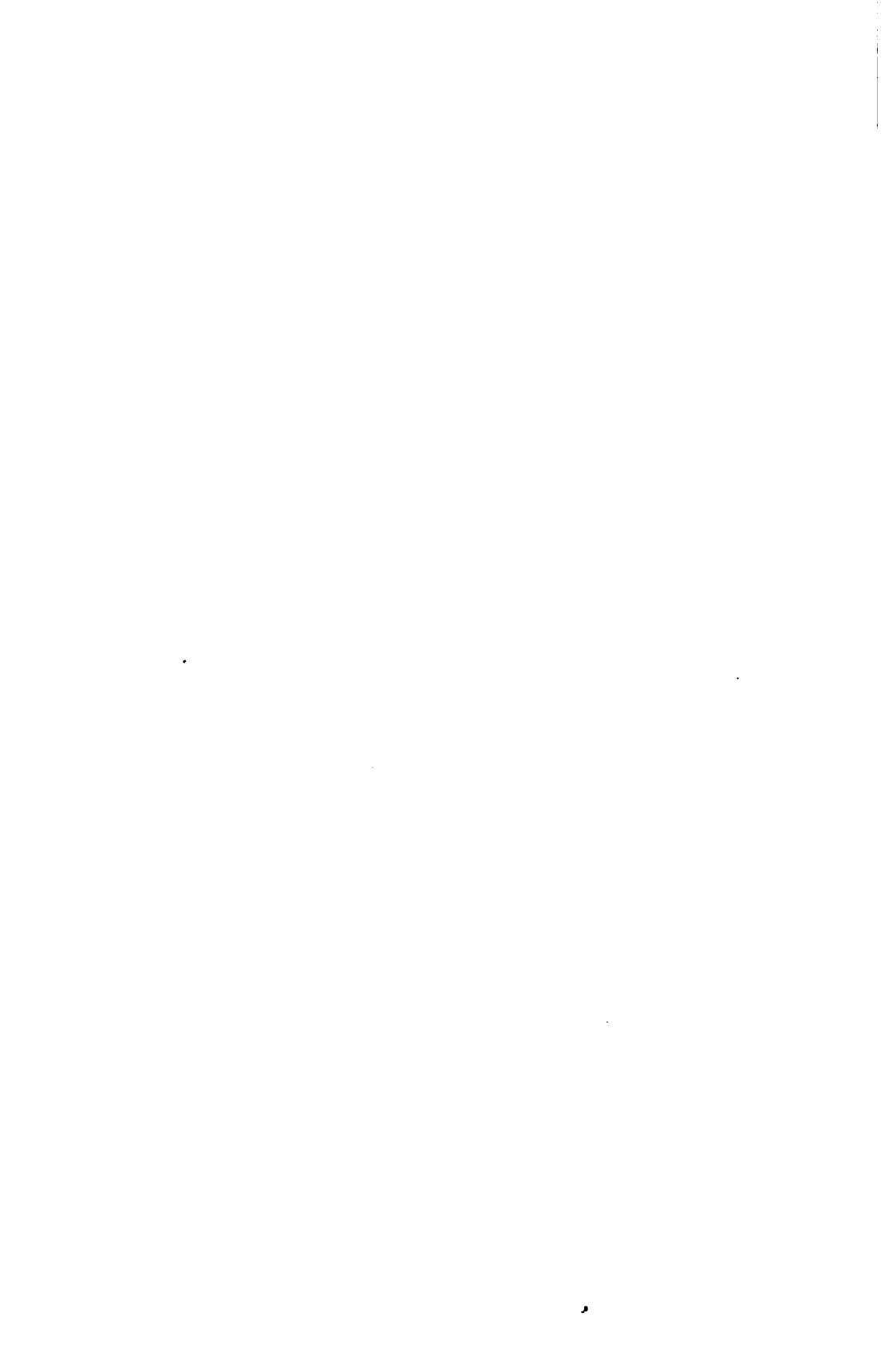
II. More especially to indicate the stages of mental growth, under the circumstances of the time. Institutions and varying influences had here to be reckoned with, and not individuals solely.

From the nature of the case, the institutions most dwelt upon are educational—schools, colleges and universities. The changes that have taken place in all that relates to teaching are so numerous and so great, that a historic, not to say antiquarian, interest attaches to many of these details.



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CHAPTER I.

EARLY LIFE.—1818-1836.

I WAS born on the 11th June, 1818, in Skene Square, Aberdeen.

My father, George Bain, was the son of a small farmer in the parish of Leochel Cushnie, in Donside. He came into Aberdeen, at the age of sixteen, in search of an occupation, and fixed upon the trade of a weaver. In the course of two or three years, however, he enlisted in the Reserve Battalion of the 92nd Highland Regiment. He was put into the light company, having a small well-knit figure, very muscular and strong. This happened in 1803. His destination was Ireland. Being in the Reserve, he could not be sent out to the Peninsula, where the regiment itself served during the whole time of the war. At the peace in 1814, he was discharged, and returned to Aberdeen.

My father's mental characteristics will appear as I proceed. Generally speaking, I may describe him as not specially distinguished for intellect, although a good average Scotsman, with a fair education, and a ready, fluent talker, within his

range of subjects. He was more remarkable on the moral side—for an unflinching energy of purpose, coupled with powers of endurance, far above the usual run of his class, or of any class. He was not without amiability and affection, but wanted the power of expressing what he really may have felt ; and, consequently, his demeanour toward his family was hard and severe, and did not inspire affection on our side. When he came finally to Aberdeen after his discharge, he took a religious turn, which may be partly ascribed to the preaching of a remarkable Irishman settled in Aberdeen, in a large church known as Gilcomston Chapel of Ease, Dr. James Kidd,—of whom I shall speak later on.

A year after his return, my father married a young woman of twenty-two, my mother. She was vigorous, active, most industrious, and a good manager of limited means. She had the misfortune, however, to contract an asthmatic affection, by carrying me as a baby some miles in the country on a hot day ; and her asthma is mixed up with my earliest recollections of her. This must have added to the burden of her labours, but never made her relax her duties, except during the moments of paroxysms ; although the ailment, of course, under the circumstances, shortened her life.

So young a mother was likely to have a numerous family. Eight in all were born ; three died in

infancy, the remaining five attained maturity, but I, the second, was the only one that saw forty. Of the other four, I may say that they were all failures in life : every one of them had, at some time or other, to be assisted by me. Only one, my elder brother, was married ; and of his family of four, but one daughter remains.¹ Such a melancholy history made a lasting impression on my mind, as indicating something entirely wrong.

When my father married, the trade of hand-loom weaving was prosperous, and expert workers could make good wages. I have a dim recollection of its being said that a man like my father, who was both expert and industrious, could earn considerably over a pound a week. But it was the sad experience of our family, that the remuneration of piece work steadily fell from year to year ; and my earliest feelings of bitter distress were due to my father's announcing, time after time, the reduction of the rate per piece of the fabrics that he wove. As the increase of his family was steady at the same time, the result was that he increased his amount of production until, I may say, for a number of years, his working day ranged from thirteen to fifteen hours. No other man that I knew could compare with him in this determination to cope with the needs of his growing family.

¹ Since deceased.—[Ed.]

The beginnings of my education pass beyond the reach of my memory. My father took pains with my elder brother and myself, and taught us the alphabet and our first steps in writing and arithmetic. When my recollection begins—and I cannot carry my memory farther back than this stage,—I find myself in the school of an old dame, who taught only reading (with spelling), and that wholly from the Bible: I could not then have been much above three. She began us with Proverbs, of which there was a separate print for the purpose. From Proverbs we went on to the New Testament, and then to the more difficult books of the Old,—those that, like Nehemiah, bristle with proper names. The metrical Psalms we read, and had to get largely by heart, along with the Shorter Catechism; a memory task being given out every Saturday for the Saturday following. My earliest piece of strategy was hit upon in connexion with this lesson. It was necessary to produce a new short psalm, or, it might be, one of the sections of the 119th Psalm, every week; and feeling the demand oppressive, the idea occurred to me to alternate two psalms on successive Saturdays. As the old woman's memory was too short to detect the manœuvre, it lasted me out my attendance with her.

My next teacher was a young student, Charles

Gray. With him I learnt writing and arithmetic, having had some lessons in both from my father. Arithmetic, I infer, I learnt with ease; for, I have no recollection of the first steps in it, as I have in the case of my writing, from getting my ears repeatedly pulled for its badness. I may have been between five and six at this stage. I remember nothing about the reading lessons, nor whether any sort of knowledge was imparted through them. Gray gave up his miserable little school to another student, M'Taggart, whose after-career in the Church showed him to be a man of power. At all events, he was the first to discover in me any faculty above common. He wrote to my father to say that, in mathematics, I had taken him by surprise. He found that I was able to enter upon Algebra, after having done Arithmetic, and set me to work accordingly, at the age of about seven. Before I left him, I had done all the common rules, and had gone as far as equations—simple and quadratic.

M'Taggart gave up his school when I had completed eight years, and I was now transferred to the school attached to the Gilcomston Church,—where I remained three years. The teacher, named Straith, was, I believe, a graduate in Arts, and a student of Divinity. He had moderate scholarship, and was something of an elocutionist in his manner. L

When I joined the school, he was under the disadvantage of having just recovered from the amputation of a leg ; but he gradually regained power of locomotion, and, being young, he showed no particular lack of energy. His school might compare with a fairly well-appointed Parish school ; he doing all the work himself, by taking us up in classes alternately, and leaving us with certain tasks in the intervals. I do not remember the books we used for reading lessons ; but we had a touch of English Grammar from Lennie—which made no impression upon me,—a little Geography, and possibly something of the nature of History. An hour a day was devoted to Writing, in which, as usual, I gave very little satisfaction, especially to my father, until I found out that I did not incline the letters enough for his taste. Arithmetic was taught individually, the pupils bringing up their slates one at a time to be looked at by the master, who gave out fresh questions to be solved. I was at once plunged into Algebra, and went through the elementary parts again, including fractions and surds, till I came to equations, simple and quadratic, all which I could work with ease. I got a “ Bonnycastle ” for my own special use, and went on to the cubic and higher equations, and a number of miscellaneous topics,—which I understood generally, but the exercises under

them had often a peculiar trick that I could not work out: no more could the master, until he took them to his own room in the evening, and consulted a Bonnycastle Key. With such a master, my progress in algebra, at least during the three years, was but small. I could do all that he could, before I was long with him. It occurred to him, however, to try me with Euclid, and, accordingly, I set to work committing to memory the Definitions, Axioms, and Postulates. I then entered upon the Propositions, which I also committed verbatim, until I reached the *pons asinorum*; when it was evident that I was working by force of memory alone, and had not the smallest comprehension of the geometrical processes. An abler teacher might have put me on the right track; but Straith simply dropped the attempt as premature—in which he was perfectly right. The faculty for Algebra does not involve the comprehension of the demonstrative processes of Geometry. What I could not do at nine or ten, was found perfectly easy at fourteen, by mere brain growth.

It was here that I began Latin. I was put through the Rudiments, and found the memory work not at all congenial—but still I did it; and, in the conjugations of the verbs, I soon hit on the device of shortening the labour by marking agreements and differences. Before leaving the school,

I had the rudiments pretty well by heart, and had begun to translate short sentences from an easy collection; but I had not entered on any classical text, still less on Latin composition. The grounding, however, gave me a start for the future.

In June, 1829, when I had completed my eleventh year, I left school for good—now to enter upon some employment for a maintenance. But it is necessary to go back and advert to other influences of an educational kind that were at work during those eleven years, although I cannot precisely date them.

My home readings were guided by the books within my reach, and were purely voluntary. My father had accumulated a small collection of works, chiefly theological, but with some variation of interest. *The Pilgrim's Progress* was one; and, since avowed romance was discouraged, it operated to give something of romantic interest, and its wonderful originality of conception, and felicity of designation, were not thrown away upon me. I must have read it many times over. Another of my father's books was the *Scots Worthies*—the lives and dying testimonies of the Scotch martyrs in the religious persecutions. An appendix, entitled "God's Judgments on Persecutors," proved still more attractive owing to

the vindictive and malevolent interest that it awakened. A third work that delighted me extremely was a composition by an eighteenth century clergyman of the English Church, M'Gowan, entitled *Dialogues of Devils*. The devils were personifications of the vices (*Avarus, Infidelis*, and so on), who recited their various operations among mankind. It was a piece of clever satire upon prevailing usages. The author, being intensely evangelical, indulged in a furious onset upon the rising Unitarianism, as represented by Priestley. Under the title of *The Arians' and Socinians' Monitor* he gave a picture of Priestley in hell ; and the horrors of that description afforded me unmingled satisfaction, while, no doubt, planting a prejudice against the Unitarian sect. I was also much interested in a little brochure, called *The Hieroglyphic Bible*, consisting of short Biblical narratives with pictures interspersed as substitutes for the occurring names. Of these last, the most notable was a figure of God as a naked old man in sitting posture—I suppose suggested by some design of a pagan deity, or, more likely, by “the Ancient of Days” of Daniel. This figure has haunted me ever since when the name of God is pronounced, if I do not forcibly exclude it from consciousness.

The sermons of Ebenezer and Ralph Erskine

were my father's favourites; and he must have exercised pressure to make me read them at a very early age. I am told that I had committed to memory some impressive passages from Ralph Erskine, and was often called upon to declaim them to people at large,—a display which my father put a stop to. I must then have been very young,—perhaps, between four and five.

I have a much better recollection of my readings in Watson's *Body of Divinity*. Watson was one of the Nonconformists excluded from the Church by the Act of Uniformity. He had an easy, sententious style, with the peculiarity of quoting frequently from the Latin fathers; and, although he supplied an English rendering, he also gave the original Latin. It must have been after my indoctrination in Latin grammar that I used to practise upon these quotations, by comparing word for word the translation and the original. Moreover, I liked Watson's easy-going and somewhat epigrammatic style, and his freedom from Calvinistic fierceness.

Going back for the commencement of my religious history, which had made some steps before my twelfth year, I can remember my occasional fits of anguish from the fear of hell, and the possibility of being cut off before making my peace with the Almighty. My father gave us seasonably

his strong religious views in a very imperious fashion. There never was anything kindly or attractive about those religious lectures and inculcations ; on the contrary, his style of lecturing was most forbidding, and, but for the fear that there was something serious in the matter, we (or I at least) should have kept up a secret hostility to the whole procedure. It was after breakfast on Sunday mornings, and just before going to church, that he gave us all a long-winded sermon apropos of some psalm or chapter in the diet of family worship. His most iterated theme was a denunciation of one and all of us, as in a headlong career to hell, without any reservation. For this state of things, he could think of no possible solution, but that God should either plunge us into deep affliction or cast us into hell. Luckily, a more merciful tone was observed both in the sermons that we listened to, and in the books we read, Calvinistic though they were ; and I was quite disposed to take religion seriously from early years, and to excogitate a view that I could act out, somehow or other, in practice. I carefully concealed from my parents, and from everybody, the seriousness that I actually felt in the matter of religion, and continued the same attitude of reserve and concealment through all my early years.

The real obstruction of my religious progress

was the very early development of the tendency to take all statements of fact in their literal meaning, and to compare them with one another, and with the facts in their actual occurrence. Consequent on this tendency, or as an accompaniment of it, was the strong sense of contradiction when varying statements could not be reconciled. From my earliest consciousness, I had this peculiarity in a degree beyond what I could observe in those about me. It operated in many ways, and showed itself particularly in religion and conduct. Children in general, if at all quick, are ready to perceive contradictions in the sayings and conduct of their elders. In time, this usually passes off, and they come under a hackneyed conformity that ceases to compare ideals with actuality,—promise with performance. With me, time only increased the disposition; and it was in the end, as will be shown, fatal to my religious conversion, and made me a ready listener to sceptical criticism.

As my properly childish days terminated, and my working occupation began at eleven, I may remark that, during those years, I was to all intents a child like others about me, at home or at school. I entered into the prevailing sports and amusements of children, without being much of an adept in the games that needed skill. My parents were but too glad to give us out-of-door liberty, save

when we had to take a part in rocking the cradle of a baby, running errands, fetching water (a standing need), or assisting in the home part of a weaver's work—namely, filling the little bobbins with yarn for the shuttles—a duty that fell primarily to the weaver's wife, but which was ultimately shared in by the children.

I could hardly say that I was a devourer of books. Not many came in my way, so that I had not the means of testing the appetite. I know for certain that reading readily fatigued me, if much prolonged. If I had had more access to thrilling romance, I should probably have devoured it even between eight and eleven. I was about ten at the time of the *Burke and Hare* tragedies, and had the chance of reading all about them; the interest being of the most thrilling description. The story, fascinating as it was, made for a time a reign of terror to children; and I used to test my courage by passing the Surgeons' Hall at night, risking, as I thought, having a plaster put on my mouth as a prelude to being murdered for dissection.

The transfer of the master of Gilcomston School to another appointment, made a sort of break-up in the school. I ought properly to have been sent on to the Grammar School, to prepare

for Marischal College—where I should, doubtless, have gained a small competition bursary, and commenced a college career. This, however, my father could not afford. The fee for the school was half a guinea a quarter—books entailing an additional outlay. My eldest brother had already gone into a shop; while I found an opening as errand boy to an auctioneer. I had also to be a sort of clerk, to assist at auctions, and to open and sweep the rooms in the morning. There was a great deal of lounging idleness in the post; and, instead of being kept down by strain of work, I was rendered healthy and strong. The responsibility, however, was too much for me; and I had to leave in about two years.

Book-sales were part of the business, and I had constantly access to libraries brought in to be sold. I frequently turned over the leaves of the numerous volumes laid out for inspection to buyers, but did not imbibe any great addition to my knowledge or culture. What I distinctly remember, however, was a sudden but temporary interest that I took in Euclid, having now attained the power of comprehending him. I suppose I was then in my thirteenth year.

My father now put me to the loom, where I continued for the next five years, which was also the period of my self-education. I soon was able

to earn a little money beyond what I had to give my mother for board wages. I had one offer of a situation as clerk in a small office ; but sitting at a desk was never very congenial, and the muscular exercise of weaving seemed preferable.

The weeks of my commencing work at the loom saw the Reform agitation at its crisis ; being the summer of 1831. I was caught in the fury of the movement, and attended the public demonstrations on the links ; going in procession with youths of my own age, or thereby. I could not help contracting Reform sympathies, which, in the shape of liberalism in general politics, stuck to me through life.

I was now thirteen. In another year, or little more, I had taken to scientific studies. Before that, however, I must have trifled away my time with mere diversions,—of which, Church music was one. It was long a hobby, little gifted as I was with a musical ear. I used to attend evening classes for singing practice ; and, when I was free, I ran after churches where there chanced to be a good precentor—the Methodist Chapel for one.

Another memorable incident was my becoming intimate with two brothers, named Stewart, sons of a blacksmith, whose smithy was an agreeable lounge, especially in winter evenings. The father

was a remarkable man for his station, and had collected a library, partly of theology, like that of my father, but much more wide-ranging, and partly of works of science and even metaphysics,—all which the sons turned to account. The eldest may have been five years my senior. The brothers were already self-taught mathematicians, like myself, and were also well up in elementary Physics and Astronomy. They were no longer at school, being at work with their father, and thus always very accessible; while, on Saturday evenings in particular, I used to spend hours with them in their home. In all my scientific studies, I had them henceforth as companions and prompters. They also introduced me to the Library of the Mechanics' Institution, then in existence about ten years, and at a somewhat low ebb after a flourishing commencement. The books of the library were almost exclusively scientific, and were, therefore, very helpful, as I cared only for science. The Stewarts joined me in endeavouring to revive the Institution in various ways; and we ultimately all became members of the Managing Committee,—I being for a long time the Secretary.

Reverting to my scientific studies, I must have begun with Algebra, and worked at the higher equations and related parts. My memory furnishes

no cue at this point ; but luckily, I have preserved a sort of diary, or daily jottings of work and study, extending over my seventeenth year. When this begins, I am occupied with fluxions, in Hutton's *Course of Mathematics* (the old edition), and devote about two hours every evening to solving exercises in maxima and minima, drawing tangents, and calculating the lengths of curves. I found myself unable to solve the more difficult examples, and was not sure that my solutions were right when I seemed to succeed. I had got beyond the Stewarts, and had no one else to assist me. At this point, the diary shows a remarkable turn in my mathematical labours.

It was a great surprise, besides being a lesson in the treacherousness of memory, to learn from an authentic source that I had been working at the higher Algebra for an indefinite period without having entered upon Geometry through the portal of Euclid. But I well remember the fact of going through the first book of Euclid, at a two or three hours' sitting. I fully satisfied myself that I understood the demonstration of every proposition, although, of course, I must have conceived many of the propositions loosely. I used to fancy that I was only about fourteen when I performed this feat ; but, in point of fact, I was sixteen, and had been engaged in Algebra for probably a

year and a half or two years previously. However, having once begun Euclid, I went on at the same pace. Next day, I did the second book, and part of the third. Two days sufficed for the fourth, and made a beginning in the fifth. Sunday intervened, when I never did any scientific work ; but, on Monday, a few more propositions were scored. Nothing further was done till Saturday, when nearly the entire day was devoted to the work, the record being the remainder of the fifth book, the whole of the sixth, and part of the eleventh. On Monday, fourteen propositions of the same book were grappled with. On Tuesday, the book was finished and the twelfth begun. On Wednesday, the twelfth was finished and a few propositions of *Data* gone through, which is the end of the Euclid record. The *Data* proved very dry and uninviting, and I doubt if I ever looked at it again.

I followed up Euclid by getting, out of the Mechanics' Library, Hutton's *Recreations*, and working at the geometrical exercises. This went on for a fortnight, when I exchanged Hutton at the Library for Simpson's *Geometry*, which I seem to have studied closely for a month (though I ought to have worked at it much longer), and then replaced it for Hutton's *Dictionary*—

taking out at the same time the *Algebraical Geometry* of the "Library of Useful Knowledge". The two numbers of this series on the Differential Calculus I bought for myself, and made a beginning of the study of the Calculus. Hutton's *Dictionary* was a mine of wealth, and I often went back upon it. The historical portions and the lives of the mathematicians, I found intensely interesting. There were also considerable treatises upon all the great mathematical departments, and many smaller articles on special topics. I then got from the Library Vince's *Fluxions*—and was devoted to it for the next week or two, solving problems and making extracts; while I made a purchase of the new edition of Hutton's *Course of Mathematics*, as remodelled by Professor Ramsay of Glasgow, the most important change being the substitution of the Differential Calculus for the portion on Fluxions. This was about the time when the Calculus took the place of Fluxions in Cambridge. It appears that the first use I made of Hutton was to begin Conic Sections. My next borrowing from the Library was Simpson's *Fluxions*,—a most satisfactory work, like everything that came from the hands of Thomas Simpson.

At the date now reached, October, 1834, I made an important move by availing myself for the evening hours of a mathematical school, taught by

William Elgen. A short time previously, I formed an acquaintance with an eccentric genius, named George Innes, by trade a watchmaker, but sufficiently versed in Mathematics and Astronomy to compile the yearly time tables of the tides for Aberdeen. I purposely took my watch to him to be repaired, for the sake of the introduction, and soon engaged him to talk on scientific matters. He knew a good deal of the gossip of Mathematics, and had a fine library of the chief classical works, which he bound elegantly, and for that and other reasons lent out to nobody. It was from him I learned that Fluxions had now given place in England to the Calculus; and this was my inducement to purchase Ramsay's Hutton and the Useful Knowledge treatise. I had heard from the Stewarts the renowned name of the *Principia* of Newton, but had not seen the work until Innes with great pomp and ceremony allowed me to look at his copy of Mott's Translation. I had to spread my handkerchief on the counter before it could be placed there. I inspected it for half an hour, so as to get some idea of its drift, and hoped one day to be able to attack it.

I have already mentioned my new teacher, Elgen. He was a singular specimen of humanity—a dwarf, less than four feet high, but erect in person, and of a commanding, not to say fierce,

expression. His school was purely mathematical, and included merchandise, and, more especially, navigation, for which he had always sea-faring pupils. I paid him a quarter's fee for his evening class from seven o'clock to ten ; my object being to get assistance in the higher theoretical branches, where I was now going on, without help from any one. He put me first into Analytical Plane Trigonometry, and from that to Spherical Trigonometry and Analytical Geometry. So rapidly did I dispose of these that, in a week, I entered upon the Differential Calculus. He lent me the English abridgment of Lacroix's great work, edited by Herschel, Peacock and Airy. This I must have studied night after night. Although there is no mention of any other book, I think I must have gone into the problems of Spherical Astronomy, at which Elgen was a special adept ; and for these I speedily contracted a strong interest, to be followed by a still stronger interest in Physical Astronomy.

It now seems strange to read that, while I had my usual day's work before going to the evening school and remaining there three hours, I still spent an hour or more at home on the books I had from the Library, going to bed between eleven and twelve. This was a deviation from my former habit of going to bed at ten punctually, to get up

at six, excepting on Saturday evenings, when I used to stay late with the Stewarts—which was made up by late rising on Sunday. I have reason to think that, when I ceased going to Elgen, I reverted to my former hours, and seldom again curtailed my allowance of eight hours' sleep.

The books that occupied me in those late hours after school are put down as,—first, Simpson's *Fluxions*, and, next, the second volume of Hutton's *Dictionary* with its miscellaneous interest, which occupied a number of consecutive evenings, alternated with T. Newton's *Conic Sections*. This last I soon exchanged for Vince's *Fluxions*, which engrossed me for a succession of eight or ten nights; being then replaced by Wood's *Mechanics* from the Library, and Ferguson's *Lectures*, which the Stewarts had in their collection. I was now engaged with Physics, and henceforth divided my attention between it and pure Mathematics.

I am now near the end of 1834. On the 24th December, Dr. Kidd died—a great event in my religious history. On the same day, Elgen adjourned his school for the holidays; and, that I might not be idle, he gave me Lacroix to take home. Another event that followed cut short my attendance at school. The day after New Year's Day, I caught the infection of typhus fever, and was laid up in the infirmary for five weeks—an

entirely novel experience. The only thing notable that I remember about it was the ennui of convalescence, and how I got through that by repeating psalms and hymns, having as yet no stores of secular poetry.

About the middle of February, I resumed both work and study. It appears I did not go back to Elgen's school, although I had still some weeks of my quarter to make good. I believe this was by a sort of understanding between us, that I could go on quite as well at home ; he lending me books, and also promising to help me in difficulties, for which he gave me a general invitation to his house. Lacroix, in particular, kept me at work for several weeks. I went on at the same time with Ferguson's *Lectures*, and also a work of Laplace—in all likelihood, his popular volume *Système du Monde*. In the beginning of May, I took Lacroix to Elgen, and he thereupon, to my great joy, lent me the first volume of the *Principia*. Another of my important acquisitions was Herschel's two volumes in Lardner, *Natural Philosophy* and *Astronomy*. These I connd for long. To try my hand at exercises, I bought Bland's *Philosophical Problems*, collected from Cambridge examinations ; but I solved very few, as far as I remember. However, I began Newton immediately, and found I could follow the First Book. About this time,

the idea occurred to me to learn Latin ; I had still in my memory the Rudiments as mastered at Straith's. I got a Latin New Testament for a help, and thereby became familiar with some of the easier forms of latinity.

At this point, a new development commences, in the shape of a Mutual Instruction Class, in connexion with the Mechanics' Institution. I may, however, go back for a little to complete the account of what I owed to the Stewarts. I must have been in their company not less than three years at the time now reached (June, 1835). I barely remember the beginnings of the intimacy. What I do remember is, that, as regards Mechanics and Astronomy, they were my first masters. They had studied all Ferguson's treatises, and, being mechanics by trade, they made models on his suggestion. One of his ideas was to construct a timepiece by three wheels and two pinions, from which I learnt the machinery of a clock, as far as measuring time went (to this day I never comprehended the striking apparatus). They also constructed a very simple telescope, with an object glass of four feet focus, and an eye glass, fixed on a rod without a tube. Through it we saw the satellites of Jupiter, to our immense delight ; we also turned it to the moon, and had a considerable

increase of acquaintance with the surface irregularities. We kept a look-out for eclipses of the moon, and got up in the night to watch them. I remember one of the posers they gave me was to explain the harvest moon, which was a special point in Ferguson. More than all this, the Stewarts had got deep in the great problems of Metaphysics, with which they posed me at a time when I was an utter novice in that region. From studying Reid's *Inquiry*, they had got hold of the perceptive theories of Berkeley and Hume, and challenged me to refute them or otherwise to resolve the paradoxes of a material world. I was, of course, quite helpless, but probably had my thoughts in this way turned to the domain of Mental Science. The name of Reid as the leader of Scottish Metaphysics became familiar; but I did not then attempt to read even the *Inquiry*, as the Stewarts had done.

Again, in theology, they were well posted up. They posed me here too. I remember especially their starting the difficulty of referring the origin of the rainbow to divine appointment, in connexion with the flood. They did not pretend to solve it, nor did they push it to the point of scepticism. Like myself, they attended the ministry of Dr. Kidd, who had written a book on the Trinity, which they possessed and ana-

lyzed,—crushing Kidd's metaphysical foundations in their own acute style. The book professed to deduce the doctrine from the nature of Duration and Space. But although we believed in the Scripture doctrine of the Trinity, we were all too deeply impregnated with the literal and scientific properties of both Time and Space, to suppose them capable of generating so great a mystery. The Stewarts, of course, showed me the draft of their criticism, and I must have concurred in it, after ample discussion. They then sent it on to Kidd himself, who invited them to a personal interview, to which they went. Nothing came of it; he rambled away in his own style, and made no attempt to refute their arguments. I often regretted I did not join them in this visit, as it was my only chance of ever holding a private conversation with the man that I most venerated as a preacher.

The Mechanics' Mutual Instruction Class was opened in May, 1835, and was kept in vigorous action for two or three years. All the intellectual strength of the then readers in the Library, both young and middle-aged, was brought into it. I was one of the first to give a discourse; the topic being the Precession of the Equinoxes, which

I had been studying in Herschel and others. It was my way all through the numerous essays that I prepared for societies, to choose a difficult subject that I did not fully understand at the moment, but got cleared up, under the strain of being committed to bring it before an audience. After one or two other addresses on Physical subjects, I seem to have made a beginning in Mental topics.

Of course, there was much to be gained from listening to the very various discourses given in the class. There was no lack of either ability or information; and, in the earlier days, there was little of the acrimonious spirit that came out at the later stages. Strict orthodoxy was largely represented; while a small number were inclined to speculations that the others viewed with suspicion. These were chiefly upon Phrenology, which was now in full force in Edinburgh, through the Combes, and had a small number of votaries in Aberdeen. The great rock of offence with the orthodox was its supposed materialism; and its supporters had always to meet this objection, but with little success. I got necessarily involved in the controversy, and so did the Stewarts,—who, if I remember right, were opponents,—although they and I, with all our orthodoxy, were entirely free of religious rancour

on that or any other question. Combe's *Constitution of Man* had great influence at that time; and I think we went cordially along with it, while only partially admitting his phrenological tenets.

One paper in the class came upon me as a revelation, an essay on Spenser's *Faerie Queene*. I thought a great deal about it—it was a sort of opening up of the domain of poetry; but I could not then follow the lead.

It was in connexion with the Mechanics' Institution, and this class in particular, that I was first initiated into the forms of business, in which I have all my life taken a very great interest, without being an adept of the highest order.

In every way, this class was a most important contribution to one's life. The zest of it was enormous.

The close of this year was otherwise eventful. Having resolved on pursuing the study of Latin, I bought the Jesuits' edition of the *Principia*, and was soon able, by help of the translation, to master, not only the text, but the commentary, and became at last independent of Elgen's copy of Mott. I had to refresh my knowledge of the Conic Sections; with that I got through the first book, and a large part of the second in the latter half of this year.

In the month of November, 1835, I happened to be in the shop of Peter Gray, bookseller, one of the members of the Mechanics' Class, a very able mathematician and a great friend of mine. The Rev. John Murray, minister of the North Parish, in Aberdeen, was in the shop at the time, and overhearing my talk with Gray, got the impression that I must be a precocious youth, and made me come and see him at his house. He recommended me strongly to prepare myself for going to college, my only want being a better knowledge of Latin, in which he offered to assist me in every way; especially, by giving me exercises and correcting them. The session of 1835 had begun, and there was a period of eleven months to the opening of the next: in those months it was my business to be sufficiently prepared to go up to the Bursary competition. Mr. Murray also gave me letters of introduction to Dr. Cruickshank of Marischal College, and Professor Tulloch of King's, who both received me with the greatest kindness, each wishing me to come to his college; so that, in the end, I had the embarrassment of preferring one, which was Marischal—a strong motive being that the walks to King's would have entailed an injurious amount of fatigue. Notwithstanding, I made repeated calls upon Professor Tulloch; and he talked with me,

and lent me works on Analytical Geometry and Trigonometry.

I found it necessary, however, to lay aside mathematics for Latin, the time being short. Yet my busy brain could not rest satisfied with the study of a language, do what I would. I worked at Latin with all my might, but also gave some time to the Mechanics' Class. Moreover, it was this year (my eighteenth) that saw me first plunged into proper mental study, which now took the place of Mathematics. I have not memoranda enough to trace the first steps, but I can remember reading, before I went to college, Hume's *Treatise of Human Nature*. The impression that I retain is proof that I had been thinking on the fundamentals of psychology and metaphysics. I could not refute Hume's Idealism any more than when I first heard of it from the Stewarts. But, from an indistinct recollection, I believe I was dissatisfied with his resolving all the difference between impressions and ideas into intensity alone. Long before this date, I had the habit of frequently watching my trains of thought, and trying to assign the links of connexion in the mind subjectively. I had thus a certain small stock of observations to appeal to in encountering psychological theories in reading. From the memoranda jotted down at the end of 1836, I infer that I had

now become enthusiastic in the study of mind as a pursuit, and that it more than divided my attention with Mathematics and Natural Philosophy.

Still, the leading events of the year consisted in the study of Latin, which became more single-eyed as the year wore on. Besides Mr. Murray's lessons, I found a private tutor in David Smith—who became a friend afterwards; but, not being much of a classic, he was inefficient in getting me up in Version writing. The grand final stroke was my going to the Grammar School for the three autumn months. This I owe to Mr. Murray's introduction to Melvin, and to Melvin's kindness. He declined a fee, and put me into the fifth class, where I got up surprisingly before the end of the quarter. Mr. Murray had lent me Crombie's *Gymnasium*, with a Key; and I set to work to commit to memory the Latin of the Key, so as to reproduce it at the sight of the English. The effect was striking and immediate. I got over the tendency to slip into maximus errors almost at a bound, to Melvin's astonishment; but, of course, was far behind in composition generally, and ended about twelfth or fourteenth in the class order—from which it was apparent that I should not appear in the Bursary List, this usually consisting of the first ten or twelve in the school, with an exceptional

outsider. What showed me to advantage with Melvin was translation—where I was easily first when it became a matter of wording and arranging a good English sentence.

The class work in this term was reading Livy, and writing three versions a week, all with an eye to the pending Competition. I was very little behind in Livy, making up for deficiency in the language by larger powers of divination from indirect hints. We were also put through the Greek Grammar to the end of the verb; so that, in Greek, I entered college almost on a par with the others.

I went into the competition, but, as I expected, was not within the Bursary List. I think I was about fourteenth in order. Nevertheless, by Dr. Cruickshank's advice, I took my place in the classes forthwith; and he soon obtained for me a vacant bursary of £10, which had two years to run.

The entry into Marischal College at eighteen was a life epoch; and I here pause in order to bring up arrears. I have purposely omitted references to Religion in the five years that I have reviewed as the beginning of self-education.

Up to the age of thirteen, I reckon myself to have been giddy and trifling, with no moral stability and no high aims. My advance in

Algebra at school was a mere play of faculty, without enthusiasm or ambition. I was as crude in every way as any youth of my age.

I date the commencement of my application to study at fourteen; but neither memory nor authentic notes reveal either the exact moment or the character of the initial impulses. However this may be, the same date saw the beginning of seriousness in religion; it was the time of an all-round earnestness in the work of improvement. My father's tedious addresses by way of Bible commentary, and his *gauche* way of giving us the choice of heaven and hell, as already noticed, with his unvarying opinion that we had chosen the latter, had on me the opposite effect to what he intended. I was sufficiently alive to the danger and discomfort of being suddenly removed and finding myself in the dreaded region, but could not gather from him any intelligible or workable course for averting the calamity. The charms of heaven failed to take my fancy: it was not the loss of these that gave me uneasiness.

The more intellectual elements of religion, the Catechism and the Bible, as well as the expounded doctrines, I easily held in my memory, and could do all tasks given at the Sunday School—but there was little devout feeling connected with these. Preaching, of course, I heard in abund-

ance, without being greatly impressed. Nevertheless, in some of the religious books read at home, and of my own choice, as well as sermons listened to, there was often a less repugnant, if not particularly attractive, view of religion. The enormous amount of self-humiliation and self-denial imposed at almost every turn gave me a sickening impression on the whole; the more so that I took everything seriously and to the letter, and could not see my way out of the slough where I was supposed to lie.

In my earliest years, and as soon as I was able to walk to church, I went with my father to the forenoon service at Dr. Kidd's. He could only find room for one of us at a time, and my brother went with him in the afternoon, or *vice versâ*. My mother belonged to a Congregational chapel, which was more sparsely attended; and some of us went with her to her only service, the afternoon's. As her father was chief beadle in that chapel, we always could get accommodated, and, accordingly, were very often there. The minister was a simple-minded man, of no education, but very warm both in his feelings and in his language; while the service was distinguished by the free employment of hymns and more gushing tunes than those in use by Kidd, who never deviated from the Psalms of David. The love

of Jesus was the prevailing theme both of the sermons and of the hymns. I was not taken by this; it impressed me in a way that I might now describe as maudlin. At all events, I should have been ashamed to confess to such a sentiment, even if I possessed it. The remark was common that the great obstacle to falling down before Christ was pride; and with this sort of pride I was very early imbued.

The increase in the family ultimately led my father to abandon Kidd's church, much as he relished his administrations. This must have been when I was nine or ten. I well remember pulling out my milk teeth as they became loosened in Kidd's church; while I was not old enough to be interested in the style of preaching, as I got to be at a later stage. My father's choice fell upon a Relief church, very poorly attended. The minister, Samuel Macmillan, was, as a preacher, dry to an extraordinary degree. When I began to work at the loom, the muscular exercise of the week often predisposed me to sleep in church, and there was nothing to counteract the tendency—except pinches of snuff, which my father used to apply to my nose. Macmillan's Calvinism was reckoned by my father as of a very pure quality, although utterly devoid of unctuousness. He had edited selections from the sermons of the two

Erskines, which we had at home. We attended this church for perhaps three or four years—with very little fruit, as far as I was concerned.

There was one small episode in the way of an attempt to arouse enthusiasm. A proposal was made somewhere to unite Christians generally in a common bond of sympathy, by taking up a verse of the Bible every day, for special cogitation—the same verse being adopted by all. Our church struck in at a chapter in the Acts, which had no particular interest except narrative. We had special meetings in week-days to compare notes on these texts. The whole affair was artificial and barren, and was soon dropped. I did very little in it, except at my father's instigation; but he made it an opportunity for dictating to us his whole scheme of redemption, by way of obviating the standing difficulties of the sinner's acceptance of the Gospel offer. He was most indignant at my brother and me, because we would not read this scheme out in the church meeting.

The Voluntary controversy broke out about the time I refer to, and Macmillan, as a dissenter, threw himself into it. This my father could not tolerate: in leaving Kidd, he still believed in the establishment. So, he left Macmillan without a word of explanation, declining his invitation to see him and talk the matter over.

His next move was to join a small anti-burgher congregation, whose minister, Aiken, was, in his own way, as dull as Macmillan. I had previous experience of his church. A maiden aunt had taken me there in my younger days, to relieve the pressure of the growing family upon our church accommodation.

✓ Aiken was slow, monotonous, and sepulchral. He greatly dwelt upon the two covenants, the Aaronic priesthood, and the mysterious relationships of the old and new dispensations. His prayers and sermons were intolerable for length, if for nothing else. The church was situated in a street leading direct from Kidd's; and it was mortifying in the extreme to see Kidd's people passing, nearly half an hour before we were dismissed. The idea of returning to this endurance, at my years, was more than I could tolerate. Almost the first Sunday afternoon that we went to Aiken's, I gave my father the slip, and went on to Kidd. He felt himself outwitted, and got out of it the best way he could; which was to insist that I should verify my attendance by bringing notes of the sermon—an easy task, making my emancipation complete.

✓ It was only now that I came properly under Kidd's influence. I attended his church always twice, and often thrice; for, although a man of

seventy, he had the enormous endurance equal to conducting three sermons in an unusually large building. His manner was captivating, after the dull heaviness of the others. He had a fine voice of bass tones ; his words flowed with an easy and melodious elocution. His matter was not profound, but went readily home, pathos being his strongest point. He dwelt, of course, upon the plan of salvation and the Gospel offer, and was urgent and impressive in his appeals to the unconverted. To vary the interest of his numerous preachings, he went in largely for prophecy, and had usually in hand one of the prophetic books—Daniel and Revelation. This led him into history. He gave us an outline of the four ancient monarchies, and described the critical periods of Roman decline—all told with lucidity and dramatic power. His evening service was usually occupied in this way, and had the effect of securing a good attendance. I had at the time little historical knowledge, and was naturally interested by the novelty : it relieved the monotony of his main themes.

Much as I was captivated with Kidd's fervent manner and felicity of style and utterance, his method of discourse and his views generally rather increased than diminished the difficulties of the way of salvation. He used to put it direct

in this form : " If you will only now accept Christ, you will be happy for ever". He even gave us the exact words that we were to employ in order to attain this magical result. I was very early impressed with the prodigious disproportion between the means and the end, and could not enter seriously into the attempt. In consequence, I felt that my conversion was still delaying, and never coming any nearer ; so that, with a perfectly devout temper and a believing disposition, I remained in a kind of chronic indecision as to my own state. When I attained the usual age for becoming a communicant, I deferred taking the step of joining the class (taught by Kidd himself) for preparing the youthful candidates by a course of catechizing (which I could easily have gone through), and by dint of repeated postponement, found myself at last under a new kind of influence that proved a fatal and final bar to my joining Church communion ; and I never did join.

The Stewarts were religious in a way, but never experienced any of my struggles. They went to Communion as a matter of course, and did not take any serious or troublesome views of the way of salvation. We often discussed doctrinal points together, but did not enter on the topic of inward religious experience. They were much more free in every way than I was. They

studied science and secular matters generally on Sunday : this, for long, I could not do, valuable as the Sunday time was to a hard week-day worker. They stayed at home from the services for that purpose, being satisfied with going to church once.

Kidd died in my seventeenth year. I cannot verify the date of my revolt from paternal authority in going to his church ; but I believe I must have been “under him” (as the phrase is) between two and three years—that is, from the age of fourteen. Emotional heat of the religious sort he certainly inspired in me, in spite of my inability to follow his prescriptions for entering the life of the regenerate.

My mother's church had an excellent congregational library, which, though mainly, was not exclusively, theological. It contained the writings of the well-known names in the evangelical world. Every Saturday evening, for a long time, I used to make a search for some book as Sunday reading. I seldom, I may say never, read any theological book through, and was delighted when I could get a volume of tracts, which changed and diversified the interest. I remember making a determined set at Owen on the Hebrews, having heard his name frequently quoted among the more spiritual divines. After toiling for several Sundays during

the hours between sermons that were disposable for reading, I had to give him up; the diffuseness and the iteration became unendurable. I still have a faint recollection of his handling. He harped upon that fine verse (as it sounded to me), "Leaving the principles of the doctrine of Christ, let us go on unto perfection"; but his transition from principles to perfection passed my discernment. The historical works of the congregational body were to be found in the library and were more attractive—Neal's *History of the Puritans* and Godwin's *History of the Republic of England*. I entered upon these a certain way, but failed to go through them. The first histories that I read completely were Robertson's; being charmed with his style and his vein of political reflection, which I could appreciate to some extent.

My greatest find in this library was a copy of Robert Hall's sermon on Modern Infidelity. The style took hold of me at once, and I well remember a Sunday afternoon walk with George Stewart, during which I read selections from the book aloud with all the declamatory force that I could command. I must have then perused it, or at least the great passages, many times. I did not have access to any other work of Hall's till my first year at college. He far transcended any other preacher that I had yet encountered, alike as a reasoner and

as an orator ; and his style was something quite new, at a time when I was little versed in our English classics.

Even this library, with its wealth of evangelistic theology, failed to advance my aims at a solution of the great puzzle of the way of salvation.

CHAPTER II.

COLLEGE COURSE: OTHER STUDIES AND OCCUPATIONS—
1836-1840.

Winter Session, 1836-37.

THE college work this session was Greek, under Dr. Brown (three hours a day), and Latin, under Dr. Melvin (three-quarters of an hour daily). Brown was a fair scholar, and not a bad teacher, but liable to fits of absent-mindedness. He had to begin us with the Greek Grammar from the alphabet; he then took us through a book of extracts, and, finally, a portion of Homer. We also had lectures from him on the History of Greece, which I appreciated more than most, making notes as well as I was able—a new exercise. I did the work pretty steadily, but without enthusiasm, and made a fair appearance in the prize list (fourth). I could have done better, if I had had more books at my command. Brown's readings of translations from the authors were very enjoyable.

Melvin was a very different style of man from

Brown; and the little I had had of him at the Grammar School did not spoil my relish (as with others) for his peculiar mode of discipline in the minutiae of grammar. He gave us Livy and Horace, with exercises in translating and version making. The last I never excelled in. Yet, by carefully getting up what he had read with us, and by tact in translating, I got one of his prizes at the end. The session was a tolerable success, so far as Classics under the old-fashioned teaching and my small avidity could make it.

I still taught a Mathematical Class at the Mechanics' Institution, two evenings a week. I did little or nothing in the study of Mathematics; the Metaphysical furore having now set in. I got from the Marischal College Library, Stewart's biographies of Reid, Adam Smith, and Robertson; but, when I asked for Hume's Essays, the Librarian (our Greek professor) refused it. I ought to have been directed to a perusal of Reid by Stewart's Life; but, somehow, this did not happen. An incident at the close of the session is my best-remembered clue to the point of advancement I had reached in the subject.

It was a usage of Marischal College, to make every class in Arts pass through a public *viva voce* examination, conducted by the professor. The students were called up in alphabetic order,

and had leading questions put to them, usually in the sequence of the course. I made a point of listening to the whole examination in Moral Philosophy, and gained a good idea of the contents of the lectures. I must have pronounced it dull and flat, but had not then the presumption, which I should have had, two or three years afterwards, to think I could improve upon it.

The class was about fifty strong, and with a few members I had contracted friendships both intense and lasting.

Summer Recess, 1837.

More eventful even than the winter session, which closed in April, was the seven months' interval before commencing the next session.

With a view to maintenance, I went back to my occupation at the loom, but not so as to exclude a very large devotion to studious reading.

Having got, through Professor Tulloch, the privilege of taking out books from King's College Library,—which, in consequence of its being the College to receive all books passing through Stationers' Hall, was the better stocked of the two,—I had the means of getting almost any book I fancied. Concurrent with this advantage, was the permission to range the Library, and see

what works it contained—an enormous advantage to one at my stage of acquirements. To look at the backs of the books and pull out and examine their contents at pleasure, was an education in itself. When any one treatise interested me, I could take it home and devour it at leisure. Hence, when I went across with some works already in my mind to be asked for, I had many others suggested by the sight of those in the shelves. My curiosity first turned upon the complete edition of Robert Hall's works, then recently published; and all the volumes I could get hold of were read and re-read with avidity. I was also profoundly impressed with Foster's *Essays*. Brown's *Lectures on the Philosophy of the Human Mind* I took out, but did not fully peruse. Among the works suggested by scanning the shelves, I remember distinctly Hartley's *Observations on Man*. The first volume I read with great admiration; but the additions of Priestley, on Natural Theology and Ethics, I thought namby-pamby, in comparison with Hartley himself. Stewart's *Essays* also I got; but a chance memorandum says the reading of them was superficial. Boswell's *Johnson* took an amazing hold of me. Johnson's dicta were thoroughly to my liking. Finding on the shelves an *édition de luxe* of Parr's works, I had them home, volume by volume, and enjoyed

them greatly. I liked the style, although it was an exaggeration of Johnson and Hall; the sermons exhibiting a much freer and more healthy tone than those of our Scotch preachers. Parr's learned discussions on Jurisprudence were refreshing, from the copious citation of ancient authors unknown to me. Among biographies, I was tickled by Monk's *Life of Richard Bentley*, and was led to make a serious study of Bentley's *Dissertation on the Epistles of Phalaris*, which Parr had eulogized as a miracle of learning. I also made an attempt on Bacon's works. The first book of the *Novum Organum* made the greatest impression of any; indeed, it was the most enchanting of all my studies of that summer. Herschel's *Natural Philosophy* had long been familiar to me; and the motto from the opening of Bacon's *Novum Organum* had inspired my curiosity to read the work: still, nothing that I had yet encountered diminished the freshness of thought and language in that wonderful first book. Then, the amazing mixture of vigour and paradox in Warburton's *Divine Legation of Moses* had its charm. It appears that I included Milton in the summer's reading—probably, my first perusal. I kept up my Latin by a daily chapter of Livy for a portion of the summer: partly, no doubt, as lesson work for College. Further still, I find

references in my notes to readings in Biography and History, apart from the books specifically named. I was also beginning to be inured to political philosophy, of which there was a good deal in Hall's works.

Equally important with the course of reading now detailed, were my companionships and societies. With my old tutor and ally, David Smith, I had regular meetings for joint readings and discussion. But, while I formed a number of friendships among class-fellows of the previous winter, the greatest of all was the attachment to George Walker, a man of extraordinary powers, in humble circumstances, like myself, but more completely tied to daily work. He was then a lawyer's clerk, and kept long office hours, but, by strength of constitution, could rise early and gain time for study. During this summer, I used to go of an evening to the office where he worked; and a little society met there, at which I gave essays (I only remember one on Freethinking), and heard others that I could profit by, and, of course, discuss. One I remember on the Beauties of Milton's Prose. The writer was John Bulloch, well known in Aberdeen, both in his own person and through his descendants. I was still attending the Mechanics' Mutual Instruction Class, where I delivered my first notable com-

position in Mental Philosophy, consisting of three essays on Philosophic Genius. My recollection of them is that they stimulated in myself a vast amount of thought on the philosophy of the intellect, and probably contained the beginnings of the view of Association that I laid so much stress on—which I was engaged for years in maturing, and for which I placed under contribution the great Shakesperian outbursts, as well as the Newtonian discoveries, and particularly Gravitation. But, indeed, the study of the mind had now become with me incessant and over-mastering. I was perpetually striking out new thoughts that for the moment seemed all-important; and the habit of continued self-observation with a view to ascertaining the laws of mental successions was now established for good, and has remained through life.

The studies of the recess tended more and more to my dissent from prevailing religious creeds, and was, therefore, not favourable to religious warmth, which I still aimed at cultivating. On the problem of conversion, I had come to the belief that repentance was the work of the creature's own self; Divine assistance being given in the way of ordinary providence, or the use of means, and not through extraordinary grace.

My bodily condition had considerably deterio-

rated during the year since entering college ; partly in the course of the college session, but still more during the summer recess. In previous years, my health had been excellent in every way, which could never be said again. As I distrusted doctors, I consulted no one. The chief derangement that overtook me, and has been more or less present all through life, was indigestion.

As there was at that time a prevailing belief that drugs did more harm than good, being too copiously administered in those days, I dreaded taking physic, which, no doubt, would often have set me right. We were now approaching the era of prevention in the treatment of disease, as set forth in the writings of the Combes, which I took in greedily. For the present, I was liable to fits of depression, and was frequently overtaken with fears of being physically incapable of the strain of study now indulged in.

Winter Session, 1837-38.

This was a far more momentous session than the previous one. The subjects were more varied, and the pressure of class attendance greater, in time at least. There was a continuation of the classics, six hours a week, divided between Greek

and Latin. In Greek, we got into higher authors. The *Œdipus Tyrannus* was gone through, and the more difficult prose in the *Collectanea Majora*, extracts from Thucydides being included. In Latin, Melvin gave us the sixth book of Virgil, which was interesting from the subject, and further portions of Horace and of Livy, with exercises in translating both ways. I never kept pace with the best of my class-fellows in Latin, but stood well in Greek, and took a certain measure of delight in it, with the result that I got the third prize at the end.

We had also a class in mathematics, one hour a day, under the admirable conduct of Dr. Cruickshank. The work was all easy enough to me; being Euclid, Plane Trigonometry, and Algebra, as far as quadratics. As I had already gone over all the ground, what I gained from Cruickshank was the correction of many slovenly ways of dealing with the propositions of Euclid, and an improvement in precise handling generally—just what the self-taught student is deficient in.

Owing to a foolish misconception of the figure named trapezium, my answer to one of the questions in the prize competition was a failure, and I lost the first prize in consequence. The successful man on the occasion might have

been a formidable rival for still higher status; but, before another competition, he died of consumption.

It is more difficult to describe the remaining class, properly the main class of the year. It occupied the largest amount of time—three hours daily,—and was the most pretentious in point of subject; its designation being Natural and Civil History—a clumsy conjunction established in the middle of the eighteenth century. The farce of including Civil History was still maintained; the professor giving a certain number of lectures on the four great Monarchies of Antiquity, without getting beyond the Macedonian or Greek. The rest of his course was supposed to be Natural History, but was a jumble of Physics, Chemistry, and Natural History properly so called. He was radically inefficient, whatever might be his subject, and left a very small residuum in the minds even of the most attentive of his pupils. I got a prize, nevertheless—I forget which.

Even more important than the college work, was my private occupation throughout this session, which may be said to have seen the beginning of my determined application to the study of mind. I got Stewart's *Dissertation* and Locke's *Essay* out of the library in the beginning of winter; probably, other metaphysical works.

My excogitations with the pen, which has been the main source of my development, were henceforth incessant.

The morning hour in the Natural History class was occupied with *vivâ voce* examinations. In the first weeks of the session, I believe I spent this hour (being out of the professor's sight, from sitting below his desk) in reading the *Pickwick Papers*. When these were finished, I took to metaphysical composition; and this, by the New Year, completely engrossed me. A definite turn was given to my efforts by the announcement of the subject for the Blackwell Prize of £20,—for which competitors had to give in their essays by the end of March. The subject was, "A Comparison of Queen Elizabeth's Age and Queen Anne's, in regard to Style". Little as I knew of literature in general, or the authors of these two periods in particular, I had the audacity to scale the fortress by sheer force of speculation. I attempted a hurried study of three authors for each period—Bacon, Hooker, and Raleigh, for the one; Addison, Swift, and Pope (I think, but cannot trust my memory), for the other; making generalizations of sentence structure, more especially in Hooker and Addison. But the whole attempt was obviously crude and premature. The speculative part was good in

itself, though little fitted to the occasion. I began what I called a system of categories, borrowing the Aristotelian word from floating allusions, and applying it to the loftiest generalities I could find; the idea being to push these generalities far ahead into subjects remote from their original source. I kept up this aim for many subsequent years, and found it to chime in with, and receive confirmation from, the philosophy of Auguste Comte. Its overt expression was, after all, confined to a note in *Education as a Science* (page 150)—where few people could discern the enormous stress that I had laid upon it, so long, in my own mind. At a later period, I could have made far more use of it in the philosophy of style, which was what the essay required, if brought in there. That I should fail in the rivalry with any one that had been a reader of English Literature, was inevitable. I heard from Dr. Cruickshank the private judgment of the examiners. One put me down as thinking I knew everything, while I knew nothing; the other said the writer showed talent, but did not seem master of the subject—which was true enough.

From some notes of the time, I gather that the writing of the essay gave a vast impetus to my psychological studies, but inflicted a blow

on my health, which I long felt, and from which, perhaps, I never entirely recovered.

My appearances in the prize lists were only partly satisfactory: in Greek alone did I keep up a position. The competition in Latin fell the very day that I completed the essay, writing from morn till nearly midnight. Even if I had entered as a competitor, I should have failed this time; the stress being put upon a Latin version, in which I had never risen to a respectable mark, from insufficient early training.

Summer Recess, 1838.

Jaded as I was, I went on in my philosophy career. It still took the form of incessant cogitation; the stimulus being augmented by occasional demands for essays to the Mechanics' or other societies. The interruptions from alternative avocations were not serious. I had to do a little teaching and other work for my personal expenses; but the family circumstances were happily such as not to exact a large contribution for board. Many students had to incur the drudgery of private tuition from four to six hours a day,—which would have rendered me quite unfit for hard study.

I began the recess with morning walks and

out-of-door readings with George Walker. We took up the *Georgics* of Virgil, believing in the expediency of keeping up a certain amount of classical study. Partly from want of ease in the understanding of the language, but still more from deficient poetical and rhetorical training, which should have begun in English, I was at the time very little rewarded for my pains. The Latin teaching under Melvin had no rhetorical efficacy. He felt the poetry himself, but could not impart it to pupils. I have no doubt that Blackie, who was thrust into the college by a discreditable job, could have inspired far more literary ardour, as well as given a better perception of literary form.

These morning walks soon came to an end. Walker entered as an apprentice with a new master, and had to give his morning hours to office work. I still went on struggling with Latin authors to little profit. Finding that my shaken health demanded regular and incessant exercise, I did nothing, for two months, but study for myself. In June, I undertook to act as substitute for the teacher of a day and evening school,—for which I received the fees. The day pupils were few in number, and very disorderly; and I did not succeed in bringing the school into anything like discipline. The evening class

was made up of factory women, who were anxious to learn, and gave no trouble. The teacher was a very fanatical religionist, and accustomed them to a Sunday morning religious exercise, which was so far new to me, in spite of all my religious anxieties and devotion. I, however, adapted myself to the situation, and was quite in earnest in giving them a highly-wrought discourse, according to my then conceptions and lights. I discovered that I could preach far better than I had supposed. Still, I was glad to be done with the whole affair; and never again did I know what it was to have the care of a common day school. This was a loss in education experience that could not be made up.

Just as the engagement ceased, I had another piece of tuition, on Dr. Cruickshank's recommendation. A young man from Glasgow, named James Anderson, was sent to stay with Mr. Thomas Best, with a view to some sort of stimulus in the way of instruction in general. I attended him two hours every morning, and endeavoured to ground him in Paley's *Moral Philosophy*. It was all against the grain, I found; although the exertion did good to myself, and brought me some remuneration, as well. I was occupied thus till the beginning of the session,

and taught the same youth an hour every evening while the session lasted.

To go back to the beginning of the recess, I have to mention my renewing the study of Hall's works, now mainly with a view to the philosophy of style, which I brought to a point for the time.

In July, I had an engagement with a friend to assist him in mental philosophy by means of Chalmers's *Bridgewater Treatise*,—which I had great faith in, as a good medium of instruction through the emotional interest accompanying the author's purpose. I regarded all the *Bridgewater Treatises* from the same point of view,—namely, as inculcating scientific truth at an advantage, in contrast to the lack of interest attaching to the common scientific manuals. The engagement just referred to was cut short by the abrupt departure of my friend for America.

I went over many of Chalmers's other works; imbibing the thoughts and taking notice of the characteristic peculiarities of the style, especially in iteration and illustration. I was long possessed of these devices; but, at a later stage, had to modify them for the sake of economy—in packing a discourse with a greater number of ideas than Chalmers could afford to find room for.

The summer reading that had most influence on me was undoubtedly the writings of Channing of America. I was introduced to these by one of my acquaintances, William Stuart, at the Mechanics' Mutual Instruction Class. He was a clerk in a business establishment, but a man of peculiar taste and refinement. He was well read in English Literature, and wrote with decided elegance, being in such points an exception to the common run. In addition to all these recommendations, he held broad and liberal views on religion, yet without anything that could be called scepticism. I spent many evenings with him, as well as Sunday afternoons,—my attendance at church being now considerably slackened, without derogating from my religious aspirations. To direct my attention on Channing was the greatest service Stuart did me; and the effect was to dissolve the exclusive evangelism of my previous education, and to inspire an ennobling Theism, without regard to special embodiments. Of course, as a Unitarian, Channing gave a new turn to the work of Christ, which I seem to have acquiesced in without protest. I perused all his miscellaneous writings, as well as his pulpit discourses, and, on the whole, rejoiced in a very decided emancipation from the narrowness of the Calvinism that had formerly monopolized me.

Among my memoranda of the year, I find reference to two doctrines involved in my theological creed, on which great stress is laid—the power of the *ideal*, and the force of companionship. The aim, no doubt, was to explain the influences of religion on definite and stable laws of the mind, which, being freshly arrived at, were highly estimated.

Specially stimulating exercises in composition during this recess appear to have been the following:—A lecture on “Reading” to the Mechanics’ Institution,—which made an effort to impart the latest form of the theory of style, the nature of illustration being the main topic. Then, the improved shape of this device was turned to account in a lecture on “Inventive Genius,”—where, I doubt not, the law of Similarity, so far as then developed, had a leading place. A third discourse related to the “Philosophy of Discovery,”—a topic I long struggled with, and believed that, even at this stage, I had considerably improved upon.

The intellectual revolutions of the year, although believed to have a bearing on religious doctrine, were, as I have said, not favourable to religious warmth, even if they did not have the contrary effect. As I became more of an intellectual being, I was evidently becoming less emotional in the only form that emotion had yet possessed me. I

had still a very strong desire to keep up a high religious tone, and believed I was succeeding in some respects, while anticipating yet greater results. The Bible heroes were still much in my thoughts, and inspired efforts to imitate them. I had made studies in the nature of duty, and would fain realize them somehow in conduct.

The beginnings of my education theories are traceable to this period. I seem also to have formulated a theory of conversation, in my anxiety to carry principles into practical applications.

The excitement of the recess months appears to have aggravated my previous symptoms of head and stomach derangement. The mental fits of depression accompanying the strain were very much ameliorated by Walker's company,—but for which my condition would have been barely tolerable.

Winter Session, 1838-39.

This was the most fruitful of all my college sessions. The occupation was entirely to my mind—Natural Philosophy and Senior Mathematics, both thoroughly well taught.

Knight's class of Natural Philosophy had ample scope—fifteen hours a week. He was a most admirable teacher in many ways, although

halting in the purely mathematical parts. This made him all the more full in the portions that were matter of fact and experimental. His genius was cut out for Natural History; the grand disappointment in his life being the failure to obtain the Natural History chair. He threw his matter into clear consecutive arrangement, numbering all his points, as a Naturalist would do; and I derived advantage in the matter of style from seeing the method so fully realized. I had come up prepared with a considerable reading in the subject, and benefited fully by every part of Knight's course. I did not need to work outside the class, except to write the weekly essays: the absorption during the lectures and examinations was enough to make a permanent storage of the course. At the end of the session, I gained the first prize, besides being complimented in very unusual terms for my essays.

Dr. Cruickshank's senior class was an advance on his junior in point of interest. Higher Algebra, Conic Sections, and Spherics, were the chief items of the course. He gave an admirable summary of the Geometrical Astronomy,—in which Knight was weak. Everything he did was thorough and lucid, while Knight had to be occasionally slipshod in difficult questions.

To the more serious work of the session, I

added attendance in a voluntary class of Greek. We read portions of Demosthenes, Æschines, and Aristophanes,—all which I found interesting, my knowledge of Greek being now more nearly on a par with the reading. I competed for a prize at the end ; but it fell to John Cruickshank, the professor's son, whose classical scholarship was unrivalled among us.

This session was made eventful through the institution of an entirely new class, the subject of which was Christian Evidences. The suggestion arose in a Commission for promoting the union of the two colleges. The main object failed ; but an incidental recommendation was made, at the instance of Dr. Abercrombie, to the effect that a Christian Evidences class should be attached to the curriculum. In Marischal College, the Principal—Dewar—undertook to conduct it one hour a week, for students of the third and fourth years. For this purpose, he compiled a text-book, which we got up in order to be examined upon. The students generally treated the subject and the lecturer with utter levity ; yet, as it was to count for the Degree, and to be on a level with the other departments of the course, we could not afford altogether to neglect or despise it.

To me the occasion was memorable as being my first contact with the Christian Evidences in

a formal and methodical shape. I had read Natural Theology in considerable amount, but had never grappled with the question of the authenticity of the Bible, nor had I ever any doubts suggested to me on the point. What struck me was the insufficiency of the case for the Old Testament; I was not affected in the same way by what was advanced for the New. Having many other trains of thought to occupy me, I refrained from following out the difficulty, and left it among the other unsolved difficulties that had grown up in the course of my religious history.

Next to the college classes, my chief work in this session was to compete for a Prize Essay on "Cruelty to Animals"; £20 being the sum offered. I soon saw that the observance of humane and tender feelings towards animals could not be absolutely enforced as a moral duty, like the ten commandments. It was a voluntary outgrowth of our sympathetic nature, and must be urged home upon that line. However, instead of basing a rhetorical treatment upon our sympathetic constitution, I drew out a full scheme of the laws and conditions of Sympathy, which I developed for the first time, and with great thoroughness and completeness, even as compared with my finished handling in *The Emotions and*

the Will. I was vastly pleased and excited by this addition to my psychological stores. I took care to embody all my latest views of illustration and composition,—by which the result must have greatly surpassed, in point of workmanship, the essay of the year before. I had, in consequence, much higher hopes of being successful on this occasion. I was soon undeceived. The prize fell to a senior student, W. G. Blaikie,—who, no doubt, excelled in the way of putting the case so as to reach the ordinary mind; against which, all my profound psychological theories wanted weight and impressiveness.

I was still engaged in pursuing the psychology of the intellect, and prepared three lectures for the Mechanics' Institution, entitled "Philosophical Genius, involving also the Theory of Discovery". It was in this course that I first turned to account the *Περὶ στεφάνου* of Demosthenes. I had studied very carefully the introduction to the speech, the drawn-out antithesis of the *συκοφάντης* and the *σύμβουλος* and the magnificent peroration of the Oath, and both then and afterwards made use of all the three portions, partly as illustrative of the genius of discovery, and partly in the explanation of oratorical art.

Summer Recess, 1839.

Among the important events of the summer, I must rank Dr. Knight's gift of a ticket to attend his Botany Class, which met daily for three months. The interest aroused was very great—opening up an entirely new region of ideas. Besides the interest of the plants themselves, and the botanical excursions in hunting for them, there was the logic of Classification, brought before me for the first time. Also, the physiology of plants introduced me into a new domain, full of high scientific thought in the Natural History world. It was nothing to what a course of Botany would be now; yet, the stimulus was immense. I kept up a feeble plant interest, and was moved to continue the local search, in subsequent years.

Immediately on the close of the winter session, I resumed my acquaintance with John Robertson, with whom I had some intercourse in my early school days. He had now been assisting Mill in the editorship of the *London and Westminster Review* for about three years, and had not quite ceased,—the *Review* being still in Mill's hands. He sent for me, talked over my intentions and prospects, and explained his own position in London in connexion with Mill,—of whom he gave me a glowing delineation, both personally

and politically. He offered to find an opening for my compositions, and suggested that I should prepare something as a specimen of my powers. I, accordingly, drew up a review of Sir John Herschel's *Natural Philosophy*, dwelling most upon its weak points. Robertson thought well of it, and showed it to Mill, who also spoke, so far, favourably of it. Robertson afterwards gave it to Dr. Arnott, who chanced to preserve it; and, on his death, it was found among his papers: thus, after fifty years, I was able to take its measure.

Another important result of my seeing Robertson was my introduction as a reader to the *London* and *London and Westminster Reviews*, from the start of the *London Review* by Molesworth and Mill. There was in these a mass of entirely novel thinking, and I devoured the volumes greedily. Mill's political and other articles, as might be expected, had a wonderful fascination for me. My conceptions of poetry also were expanded through some of the articles, by the consideration of cadence and harmony, which were hitherto in the background in my theories. Several of Mill's own critical essays, and his *Theory of Poetry*, were, I think, in the volumes I then perused. His review of Tennyson I remember especially; yet, I could not find in

it critical principles, but rather an *ipse dixit*, after the manner of other critics, expressing his personal judgments from mere feeling.

The work of the recess included the finishing of the library catalogue for the Mechanics' Institution—a tiresome job, but useful from giving enlarged acquaintance with the kind of books, mainly scientific, which the library contained.

My only other paying occupation was work for several weeks, two hours a day, in extending Dr. Ogston's lectures on Medical Jurisprudence, by engrossing book extracts which he had marked for being included in his MS. There was interesting matter here; and I find it put down in a memorandum that it practised my facility in handwriting of a thoroughly legible kind.

In the way of routine studies, I had frequent meetings with William Beverly, for Latin and Greek readings; with walks and talks superadded.

Still more stimulating was the companionship of David Masson—now a graduate (his course having been finished in April), and intending to study Divinity. He was already a deep thinker in matters of philosophy, literature, and theology; and, while I poured out my cogitations to him, he gave an encouraging attention, which was what I needed, and profited by. He also introduced me to the Theological Debating

Society, of which I could not be received as a member till I became a graduate. The debates were interesting, and were partly on theological topics and partly on the great Non-Intrusion controversy, which already had contracted burning intensity.

The chief local incident of the summer was the visit of Chalmers, to stir up the Church extension enthusiasm. I went to all his addresses, and was made a still more ardent devotee of his writings, which had been previously in my hands, as a study both of doctrine and of style. I was eagerly interested in all that he had done in Mental Philosophy, but made still more use of his methods of style, in so far as communicable. While touching everything with genius, he had carried the expository art of iteration to its very utmost extent, almost to caricature; but, for a certain stage of young men's progress, this was exceedingly valuable and impressive, being to me a permanent contribution to rhetorical method, even although greatly qualified by subsequent influences.

I have alluded to the companionship of David Smith as being very valuable to me. He was constantly suggesting points, chiefly in Divinity, which had the effect of drawing me out—seldom on the lines that he had introduced, but still in

very friendly debate. I have it recorded, that I pressed upon him a struggling notion of reducing divine influence on the mind to terms of purely human influence, without derogating from its peculiar source. He resisted the attempt, but failed to convince me of its erroneous or incompetent character. He was ardent and suggestive, although somewhat confused, as well as being limited by his predilections as a student in Theology; but we had many agreeable walks and talks, and I got from him notes and reports of the lectures of Dr. Mearns, whom I had no opportunity of hearing on Theology, but had reason to admire for his freshness and depth, as compared with what I encountered in my own Theology reading.

It was very difficult during this recess to prepare for the Mathematical Bursary competition, which took place at the opening of the ensuing session. The value of the bursary was £30 a year, for two years. The possibility of having a well-prepared rival made me feel anxious, seeing that my strength was fully used up with other tasks, and I could do very little in the way of special cramming. I could only make some feeble attempts at preparation in the evening hours.

To complete the work of this recess, I have only to add the preparation of a course of lectures

on Natural Philosophy, which were to be given weekly during the next session, amounting to twenty in all. I fell back upon my former readings, augmented by Dr. Knight's course and by my usual severe analytic dissection and minute analysis, wherever that was applicable. This last operation came chiefly into play in the properties of matter, and in everything that involved atomic forces.

Winter Session, 1839-40.

The principal college work of this session was attending the Moral Philosophy class—which met fifteen hours a week. The professor, Dr. Glennie, was old and feeble. He had a young clergyman as his assistant, who did the work of the six hours weekly; while he himself took the remaining nine. His mode of teaching was a survival from the old University system,—of which he was probably the last example. The morning hours, when the assistant officiated, were devoted to dictation, called by the old Scotch phrase, “diting”. It consisted in slowly dictating a summary of the course, in consecutive composition. The substance had long been fixed, so that the student had to take down, word for word, the notes already in the possession

of former students for many years back. The remaining nine hours, during which the professor officiated, were for the larger part occupied with lecturing from a manuscript, which, in fact, constituted his course of lectures, properly so called. Of these nine hours, however, two were usually devoted to *viva voce* examination; consisting of questions read out of a MS. book, to which he literally adhered, being incapable of shaping questions in any other way. Another hour, once a week, was occupied with Latin readings in the *Epistles* of Horace, and in Cicero's *De Officiis*. This, too, was a survival of the system of distributing classical tuition over the higher years. It happened to be congenial to Dr. Glennie, who was a good Latin scholar.

Such was the ordinary routine under which the session commenced. It so happened, however, that, at an afternoon meeting, half-way on in the session, Glennie was suddenly stopped in his lecture by a fainting fit. The class was dismissed, and he was not allowed to resume any part of the teaching work, the assistant having to do the whole. He (the assistant) continued as nearly as possible on the same lines, having, of course, the MS. lectures to read from, and making some attempt also at class examinations, while dropping the Latin reading.

Of the composition of the course, I will speak afterwards, in connexion with my own employment as Dr. Glennie's assistant, two years later. I will only say at present that, while there was much of the best material to be found in the Scotch School, of which Reid was the acknowledged chief, it was a kind of material not suited to inspire students of the usual age of the fourth year's class. What made matters still worse was the want of concurrence in the arrangement of the dictated notes with the read lectures. There was a certain remote parallelism in the run of the two lines; but it was not close enough to be followed by the class. Accordingly, the habit of the students was to take down the notes, and pay little or no attention to the lectures; the time being occupied in any sort of trifling that could be hit upon. What aggravated the situation was that the examination questions kept neither to the one line nor to the other.

I have so far anticipated my attendance on the Moral Philosophy course, and must go back for a little to the important incidents at or near its commencement. The Mathematical Bursary of £30 a year for two years was competed for in the first week of the session, occupying two days; the time in each day being absurdly long

for the work given out. On the first day, the competitors were allowed to remain in the College Hall from ten o'clock in the morning till midnight, and had three problems prescribed,—the most difficult that could be selected within the limits of common Algebra and Geometry, but going no higher. The second day, three other questions were prescribed; the answers being handed in at ten o'clock at night (Saturday). There was one other competitor besides myself. Of the three questions on the first day, one was the most puzzling of all the modes of constructing a triangle from given data. I ought to have been prepared with this from Simpson's *Geometry*, which I had partly studied in preparing for the competition. In point of fact, however, I failed to solve it, but was quite successful with the two other problems given out. The rival candidate succeeded with all the three, and, at the end of the day, I naturally felt very despondent. On the second day, the questions were equally difficult, and my rival failed considerably; but I was successful in them all. The bursary, accordingly, fell to me, and helped to give me a maintenance for the next two years, independent of private teaching or other drudgery.

Another preliminary to the work of the session was the composition of an introductory lecture

to the Mechanics' Institution course of Natural Philosophy, which had to be delivered the evening before the bursary competition. I may further add that, as Secretary to the Mechanics' Institution, I had to prepare, at the same time, the Report to the annual public meeting of the members of the Institution. This, too, was a work involving labour.

To resume the proceedings of the session. The amount of attention I gave to the Moral Philosophy lectures was simply to watch for anything that struck me, on the chance of remembering the good things, but without taking notes. I regarded these lectures as containing much sobriety and good sense on the various questions, but very little that could add to my stock of knowledge at the time. As I could easily make use of a fellow-student's copy of the morning dictation notes, I saved myself the trouble of taking them down, and occupied the hour in another way. I had begun the practice of analyzing in writing the succession of my own thoughts, with the view to generalize the laws of Association. I extended the practice to book compositions; and, having long been a student of Robert Hall's works, I took some composition of his to the class, and wrote down an analysis

of the connexion between each distinguishable thought or expression and the succeeding. This went on for a good many mornings, but I find that I got into a state of over-excitement, and had not only to give it up, but to run away to the country for three days, in order to quiet the nervous ebullition.¹ I still persisted in the same kind of analytic writing, and turned it

¹ A letter received from George Walker on one of the days when I was in the country, furnished a realistic picture of the ongoings of the class, which was as follows:—

“ We have not had the pleasure of beholding the Venerable Goose’s face since we saw yours. He has, of course, been acting by deputy in the several departments of lecturer, examiner, and dictator. Upon the whole, the class has been behaving pretty well—myself not excepted. The cards and drafts, like infant schools, preserve us at least from mischief; though Dewar [Duir] has given some hints as to behaviour. We had marched in to-day, each with a stick in his hand; and happening to go in first, to an unforbidden seat too (we have been restricted to two), his eyes were directed to mine, in remarking our preparations, as he termed it, for noise. The effect was, that each put his stick on a back bench; and, on the whole, they made a comical appearance. Dewar could not keep from laughing. He makes a much better examiner than the old gentleman—apparently preparing for the job; he proceeded at first with great timidity, and seemed sensible, as he sat cross-legged in the easy chair, of the serio-comicality of the affair. He was forced to smile several times. He has ventured to collect the fines, which he does in a manner much to the satisfaction of *Sham* [Alexander Cruickshank] and the other fun-loving gentlemen of the class. We second his demands for payment in grand style. In all probability, he will enjoy his dignity until your return. It would be a special act of Providence, if Goose never came back. We were ordered the other morning to bring ‘other papers,’ pen and ink to the class—for the purpose of getting notes on ‘Logic’. We have had two lectures on it. The first one, from first to last, was Principal Campbell’s *verbatim et literatim*—about the end of logic, the minor importance of ‘rhetoric,’ the difference between the principles of eloquence, applicable to all languages, and those of grammar, applicable to each individual language only. The second lecture described the nature of Aristotle’s works on this subject, and also those of Longinus, Cicero, Quintilian, etc.”

upon Shakespeare—on whom I spent a great deal of study, and who helped me largely to psychological results, both intellectual and emotional. To reach the secret of his genius was a long-standing aim; he being, to my mind, the *ne plus ultra* of intellectual originality.

After being obliged to give up my analytic writing in the morning hours, I had to trifle away the time as well as I could, not being subject to any discipline on the part of Glennie's assistant. No other incident of any moment, beyond what I have already stated, took place in this class until the close of the session, when there was an examination for settling the prizes. We had the assurance that the questions would be taken from a very limited stock, perhaps thirty in all, which had served in a rotation of many years; and I took care to have sufficient answers in readiness for them all—which cost me an afternoon and evening's work. As no one else had given the same amount of attention to the course, I gained the first prize.

The Moral Philosophy class, although the main occupation of the session, was not the only class. There was a higher mathematical class an hour a day, five days a week, optional to the students generally, but obligatory on the mathematical bursar. It of course, was serious

work. The Differential Calculus and Analytical Trigonometry were the principal subjects taken up. My exclusive interest in mathematics had long since faded, and I gave now only the amount of attention to it involved in the College requirements. For purposes of general scientific culture, I had as much as was at all needed.

An hour a week in Greek, and an hour in Christian Evidences, completed the class attendance of the session. Notwithstanding the number of hours—twenty-two a week,—the session was not an oppressive one—perhaps, less so than any of the three preceding sessions. The distribution of time was such that there was an hour's break between every two meetings; one effect being to spread the work over the day (from nine to four most days), but also to lighten the intellectual strain. In spite of other occupations, to be noticed presently, my health, with the break alluded to, stood out well to the end of the session.

My first extra burden was the lectures on Natural Philosophy. Besides compiling, I endeavoured to strike out original views, and also to bring to bear all my acquired notions of expository method. In this last respect, I was considered to have made a success; although I was sometimes complained of, for the undue

length of the lectures. If I extended them, as I sometimes did, to an hour and a half, or even two hours, it was at least a proof of some considerable physical vigour, seeing I had spent five hours in the early part of the day in college classes.

It was in this same session that my attention was first directed to Logic proper; and I produced two elaborate essays on the Aristotelian principle, viewed mainly as a practical help for discovering the soundness of reasonings. Whately's book, which I had attempted to read, led me a very little way, and was in fact discouraging. These logical essays, which happen to be preserved, were read at the Mechanics' class. They seized hold of the Aristotelian principle as the means of analyzing complicated, confused, and involved reasonings—the same use that I made of it in my latest teachings. I showed, by a number of examples, how it might be thus employed; the upshot being always to land me in an inductive operation for ascertaining the validity of a proposition, or for arriving at the accurate definition of a general term.

I was induced to become a member of a small Mathematical Society; although I felt that my day for the work was past. Instead of prescribing for my fellow-workers a cranky geometrical con-

struction, I gave out the mathematical calculation of the velocity of sound. I had formerly studied, with very little satisfaction, Newton's calculation in the *Principia*. I set to work myself to draw out his demonstration in writing, so as to fill in and criticize every step; being satisfied that there was somewhere a *petitio principii*. The others, however, disregarded all my pains, and gave a short algebraical estimate—which they considered enough. From that hour to this, I have been a sceptic as to the application of Mathematics to Natural Philosophy, except in so far as vindicated by results.

My chum Masson, hitherto one of my inseparable companions, was now, as I have remarked, a graduate in Arts, intending to go on to Divinity. Instead, however, of taking the Aberdeen classes, he found an opening for lucrative tutorial work in Edinburgh, and removed thither at the beginning of the present session. He remained in Edinburgh henceforth, having the advantage of attending Chalmers, and came to Aberdeen merely in the autumn vacation. Even then, I saw little of him, as he had invitations to country manses for part of the time. Our intercourse, therefore, lay chiefly in correspondence. It was the interregnum between the old expensive postage and the penny post.

Letters from Edinburgh to Aberdeen formerly cost 10½d. ; a universal fourpenny rate was now substituted. During the present session, a good many long letters passed between us ; purely personal matter relating to our respective studies being mingled with references to the great ecclesiastical fight then going on, and increasing in heat from month to month. It is unnecessary, at this stage, to allude further to what must come up later.

Of the session work, I have now only to deal with the close. The month of March brought the labour of preparation for the M.A. Degree examinations—carried on at this time, and for some time after, on a very oppressive plan. There were seven subjects in all ; the newly instituted Christian Evidences class ranking as equal with the other six—Latin, Greek, Mathematics, Natural Philosophy, Natural History, Moral Philosophy. These seven subjects had to be taken on seven consecutive days, with only the Sunday break. The Christian Evidences examination was to be *viva voce* ; all the rest were conducted in writing, the list of questions, in each case, being serious and severe. In point of fact, we were under a very recent reform in the matter of Degree examinations, which, after a time, had to be rendered less trying by being divided into two diets, with a

year between. The Degree was not simply a pass ; it also comprised a small list of honourable distinction. In my peculiar circumstances, it was important that I should figure well in the distinction list. During the fortnight preceding the examination, a few of us clubbed together for preparation in Classics and other subjects ; I working far above my strength, as was unavoidable. I knew that there were one or two subjects where I could not expect to score high. It so happened that the Moral Philosophy examination was the same for prizes and for the Degree ; all the other subjects had questions purely for the Degree. I had no difficulty with Christian Evidences, neither did I feel the least anxiety as to Mathematics, Natural Philosophy, Moral Philosophy. I was also well up in Greek. The two subjects where I felt shaky, not as regards a bare pass, but with a view to a high position, were Latin and Natural History. I knew that there would be a Latin version, and I had never attained proficiency in writing Latin. I was also pretty sure that the Natural History questions would be more than I could fully overtake.

The seven days passed, and I was, of course, prostrate and exhausted. The declaration of the result coupled Alexander Cruickshank and me

as equal at the top. This was disappointing, but not surprising. He being an unfortunate paralytic, although able for a certain amount of college study, could never be qualified for professional occupation, and he devoted his whole time and strength for this session to getting up the work of the Degree subjects. It was some years afterwards that I learned a curious episode in connexion with this decision. It appeared that the mode of reckoning merits in the Degree examinations was not by numerical values, but by a rough mode of assigning verbal designations—as *optime*, *bene*, *mediocriter*, *male*. From the preserved records of the graduation, I found myself credited with five *optimes* and two *benes*—these last being in Latin and in Natural History, as I expected. Alick Cruickshank had seven *optimes*. It was evident that, in the scientific subjects, he must have fallen considerably behind me; for, in Moral Philosophy, I had the first prize, while he was out of the prize list. This was not all. In the new Christian Evidences department, the examination was purely *visà voce*. That he was perfectly prepared on the subject, there could be no doubt; but, when under examination, he was so nervous as to be unable to give a distinct answer to any of the questions. By a somewhat inexcusable stretch of favour, he

was, nevertheless, credited by Principal Dewar with an *optime*. The remarkable incident is to follow. When it was proposed, as a matter of course, to put Cruickshank's name at the head of the Honours List, I being second, his father interposed with warmth. He maintained that the markings were delusive as to the apparent superiority attributed to his son. The effect was a compromise by which we two were bracketed equal.

CHAPTER III.

LITERARY BEGINNINGS: PUBLIC TEACHING: OFFICIAL
EMPLOYMENT—1840-1850.

Summer Recess, 1840.

THE summer of this year saw the commencement of my writing for publication. It was through the good offices of John Robertson that I first obtained admission to the *Westminster Review*. In the beginning of this year, John Mill parted with the *London and Westminster Review*, handing it over to Henry Cole and W. E. Hickson. One result of the transaction was that Robertson himself was cast adrift, and had to look out for some other openings. Nevertheless, he wished to do something in the way of introducing me to literary work, knowing exactly the nature of my studies and objects of pursuit. In various communications received from him in April, May, and June, he suggested as one opening the *Penny Cyclopædia*, and advised me to choose topics in alphabetic advance of the published parts. I mentioned "Induction" as

a subject on which I was prepared to write, but to this he answered very naturally that no editor would entrust that subject to a beginner.¹ Nothing ever came of the proposal to contribute to the *Penny Cyclopædia*. More success attended Robertson's offer to procure for me admission to the *Westminster*, under its new management. In considering suitable subjects, I had alighted upon the novel discoveries of the electrotpe and the daguerreotype; on either of which I was prepared to write an expository article, throwing my whole strength into the effort of pure exposition. The editors accepted the offer, and desired me to include both in one article.

The composition of the article occupied six hard weeks in June and July. It had to be given in on the 15th of July. The method of the exposition was to isolate all the steps of the process in the two portions, and to give a clear and emphatic expression to each in such language as would be generally intelligible. Instances of this mode of exposition were, of course, not

¹ The offer of Induction as a subject grew out of the Logical Essays already referred to. In them, however, I had not formulated an inductive method further than to exhibit the necessity of the generalizing operation in formally disposing of any given argument. I was strongly prepossessed, from the very first, by the absolute necessity of an appeal to particulars in establishing any proposition, but had no specific formula for going to work beyond the simple collection and comparison of particulars. In many subsequent essays, I carried out this design with the utmost zeal and emphasis.

unknown; but it was seldom practised with the same degree of persistence. I had learned the art in various schools, or from various writers, and had formed the wish to carry it out to the utmost. Iteration with emphasis, aided by a strong imagination, had been the teaching of Thomas Chalmers. While admirable for an individual idea, the defect of his method was soon discovered to be that it did not easily lend itself to a complication or compound of several co-ordinate ideas.

On the 18th July, I received a letter from Cole, in which he intimated the acceptance of the article in complimentary terms. It appeared in September.

I had wished to adopt, as the subject for a future article, "The Theory of Colours," apropos of the translation of a work of Goethe on the subject, but found I was talking very much at random, and that the work was not at all suited to be the text of a popular exposition. It was not till the end of the year that I came to an understanding with the editor, Hickson, in regard to a second article, entitled "The Constitution of Matter". There was a little hesitation on his part as to the possibility of giving the topic a popular handling, but he at last agreed to allow sixteen pages for the article in the following July

number ; so that the composition was deferred till towards the end of the session, 1840-41, when I had had the benefit of Clark's Chemistry class.

The close of the session had left me in an exhausted condition, yet I had still to go through the composition of the second and most elaborate essay on Logic. After a short stay in the country, I went on a visit to Masson in Edinburgh, which, of course, included a survey of the glories of the place. To this was added attendance on the sittings of the General Assembly, then possessing a more than ordinary interest. The chief stress of the business was the Non-Intrusion controversy. It still wanted three years to the Disruption, but the debates were tending in that direction. The speakers included Chalmers, Cook (leader of the Moderate party), M'Farlane, Begg, and Dunlop. Chalmers, as usual, towered above them all, and gave one of his splendid orations. There were absent from this Assembly the three notables who soon bore a distinguished part in the agitation then pending — Candlish, Cunningham, and Guthrie. I, of course, took a very great interest in the whole development of the question, which became, for several years, the leading topic in the youthful circle with which I was associated. It was debated on every possible ground—general politics, law, Scripture, and expediency. My

most intimate companions and allies were on the Non-Intrusion side. Masson, in particular, was animated by a burning zeal at all points. Still, there were among our associates some who took the other side ; and, consequently, the occasions of debate were frequent, both in our Theological Society and in more private intercourse.

I may say, once for all, that, while I sided with the Non-Intrusion party in its primary contention for the right of the people to appoint their ministers, when it came to disobeying the authority of the Courts of Law, I could no longer go along with the party. I could not see how the situation thus created could be rectified by any known means. My feeling was admirably put in an expression used by John Mill when he had to remonstrate with the leaders of the London working men, who were proposing to meet in Hyde Park in defiance of the Government. His language was : " You need to be convinced first that a revolution is necessary, and next that you are able to carry it out ".

Returning from the Assembly in the end of May, I took up my abode in town for three months continuously, with a short run to Braemar in July. I had to finish the article for the *Westminster Review*, which was completed in June and published in September.

It was at this time that I made the acquaintance of John Shier, a most genial and intelligent man, who became helpful to me in many ways. He gave me good advice in the care of my health, at a period of growing scepticism as to the efficacy of medicines. That doctors were given to over-drugging at this time was their own confession, twenty or thirty years afterwards. As already remarked, the writings of Andrew Combe were much in vogue among young men, such as myself, beginning to suffer disturbed digestion. Shier was very sedentary in his habits, and I used to spend long evenings at his lodgings, when he read to me from his favourite authors, and gave me a considerable fillip in *belles lettres*, in which I was still very backward. He was a man both of scientific attainments and of literary refinement.

On the 24th March, my mother died, at the age of forty-seven, of a bad accident induced on an exhausted constitution. She did her duty to the utmost of her powers through a very hard life. Her household labours, which were too much for any one person, were aggravated by her chronic asthma. She murmured very little at her lot, and I doubt if any one could have done better in the management of her house and family. Two of my sisters were of sufficient

age to take on the housekeeping as it then stood. My father was now breaking up, and soon became unable for his usual occupation, so that all he could do was to bestow a little attention upon the cooking and minor household matters.

Holding the office of Secretary to the Mechanics' Institution, I was involved in the carrying out of a great undertaking of the present summer, namely, to raise a fund by means of a grand exhibition—scientific, artistic, and antiquarian,—for which a temporary building had to be erected. The chief labour of this undertaking devolved upon James Rettie, who spared no pains to make it a success. He took upon himself the arrangement of the scientific part, and was for many weeks employed almost daily in the preparations. Of course, many meetings of the Committee had to be held, and I had to carry out the wishes of the body in the matter of correspondence.

On Shier's recommendation, I was engaged by Hugh Lumsden, of Pitcaple, to act as tutor to his son Henry, by way of preparing him for attending the University of Edinburgh in the winter. I, accordingly, went to Pitcaple Castle in the middle of September, and remained till the end of October, when the winter session at Aberdeen began. The duties at the Mechanics'

Institution were undertaken by George Walker, who attended all the Committee meetings as *interim* Secretary, and gave me regularly an account of the proceedings, involving a considerable correspondence on my side. The change to the country proved invigorating, although I had to be busily employed the whole time. Three or four hours a day had to be given to the work of coaching the youth whom I was engaged to teach, while a younger boy was put upon me for a separate hour daily. There was a good English library in the house, and I perused various works of interest; what I remember most being Johnson's review of Soame Jenyns on the origin of evil—a perfectly unanswerable criticism it seemed at the time.

Most important, however, was my taking in hand a thorough study of the volume containing Faraday's collected papers on Electricity, just published. This was in the line of my physical studies, as exemplified in the *Westminster Review* article and otherwise.

In these researches, Faraday indicated the steps whereby he achieved his grand discovery of magneto-electricity. This was the finale of the mutual conversion of the different species of electricity, together with the conversion of electricity into chemical and into mechanical

force. To obtain from a permanent magnet a current of voltaic electricity,—voltaic electricity having already been made to magnetize a horse-shoe of iron,—was the object to be gained, and was at length accomplished. I set to work upon a minute analysis of the experimental results of the papers ; the plan being to extract from every ascertained result whatever inference could be fairly drawn from it—in other words, to exhaust the bearings of each before leaving it. In this way, I was able decisively to anticipate the results of other experiments, and, in fact, to supersede the necessity of such experiments, except in so far as an experimenter desires to confirm every important suggestion that arises. I believe I satisfied my own mind that Faraday's final discovery of the necessity of revolving his copper disc in the face of the magnetic poles, was a foregone consequence of facts and doctrines previously established by him, or by the progress of antecedent discoveries. Although I shaped a portion of these researches into an example of Mill's four methods in his *Logic of Induction*, the important moment of the conversion of magnetism into current electricity was not adduced. I have no record of this exemplification of the analytic extraction of inferences from given facts. The process is partly shown in the article

on the "Electrotype," and still more thoroughly in the second published article on the "Properties of Matter," composed soon after.

Winter Session, 1840-41.

The Arts course at Marischal College, good as it was in some respects, was seriously defective in regard to Science. Chemistry was not included; the notion being that the subject was purely medical. There was nothing to represent Biology in any form. The so-called Natural History class should have included some account of Zoology; but all that was said on that head was trifling. A little later, a tolerably full Natural History course was provided by Professor Macgillivray, and, after him, by Professor James Nicol.

As I had a session to spare for additional class attendance, I chose to occupy it by taking Clark's course in Chemistry and Allen Thomson's in Anatomy.

In the memoir of Clark, which I prepared for the Chemical Society, and reprinted with additions in the *Transactions of the Aberdeen Philosophical Society*, vol. i., p. 101, I entered fully into his peculiarities as a lecturer. I need

only say, in addition, that I attained a tolerable mastery of his course as given in the session attended. His pace of exposition was not too rapid, and, what with the interruptions of the experiments, I could take down almost everything that he included in his lectures. The contrast was very marked when, during a fortnight of the session—a time that he had to be absent in London,—the gap was supplied by John Shier, who was perfectly lucid as an expositor, but went on too fast for full note-taking. At the close of the session, I carried off the first prize, although I might have been worsted by another student who had heard Shier's lectures as assistant to the Natural History Professor. I had gained by the course a thorough grounding in chemical laws, as well as a considerable amount of valuable details for subsequent application in various lines of study. The bearings of Chemistry on Physiology, for example, were very numerous, not to speak of the promiscuous applications in other fields.

One great result of attendance on this class was my becoming intimate with Clark as a personal friend. In that capacity, I derived many kinds of instruction, apart from his chemistry lecturing. His enormously active mind could not be sufficiently appeased by his purely scientific work, although that comprised a number of original researches; his water testing and purification

being the most notable. At the time of my making his private acquaintance, he was spending his evenings in studying our classical English authors, with a view to points of grammar, idiom, and style. Everything that he arrived at as he went along was communicated to those who, like myself, spent an occasional evening at his lodgings. His object did not seem to be so much to improve his own composition—although that was an object with him—as to establish new conclusions in connexion with English composition. In fact, if his aim in life had been literature instead of science, he could not have been more assiduous in his devotion to our model classical writers. One of his favourite authors was the dramatist Massinger: I am not sure that he did not prefer him to Shakespeare. At all events, his friends who were disposed to listen to his talk got the benefit of his views on a large range of matters connected with our literature, and much of it of a really practical value. He was the first to apply the term grammar to the paragraph. I possess some examples of his re-casting of the paragraphs of Addison. His proposed alterations and improvements did not so much point to re-arrangement of the sentences, as to the substitution of more telling phraseology, for bringing out the author's meaning. The most practical outcome of his inquiries was to establish the important distinction between the relatives "that," and "who" or "which". This he showed to have been attended to with advantage by our older writers, although neglected latterly.

At the time I speak of, these grammatical studies were giving place to a still more abstruse and elaborate investigation, namely, the supposed transition from Old English, in the guise of Anglo-Saxon, to our modern English, which some writers, as Hallam, had referred to a very limited time—less than a century. Clark did not stand alone in perceiving the absurdity of this

assumption, and it was very soon refuted and displaced by our specialists in English philology. Still, he took an enormous amount of pains in the analysis and comparison of English literary remains at the supposed period when the transition was effected, and frequently dilated on his results in private conversation; although he never prepared them for publication, and I am not sure that his labours had any influence on the course of the subsequent investigations of others.

These various inquiries outside Clark's proper scientific work, unfortunately received an increase of attention through the breakdown in his health, which took place within a couple of years of my first acquaintance with him. Becoming unfitted for the conduct of his class, he had likewise to remit, in a great measure at least, his laboratory work, and had thus his time thrown upon his hands for any occupation that could at once interest him and yet not be too much for his reduced strength.

He followed up his Old-English inquiries by an incursion into phonetic spelling; a subject which had now begun to be agitated. For a year or two, this was a standing topic with him, and he carried it through various phases. One consequence of hearing him frequently descant upon the subject was that I obtained a discipline in our vowel pronunciation, into which he thoroughly entered with a view to making good our alphabetic defects. In any scheme of phonetic reform, several new alphabetic characters had to be devised, and he exerted his ingenuity in the search. Of all the schemes put forward for a complete representation of our alphabetic sounds, his appeared to be the most successful. His investigation and construction of alphabetic letters went the length of framing an entire alphabet, guided by the theoretical conditions of perfection in the forms of the letters. His experiments had no immediate result,

but they remain as suggestions to future inquirers, and may be seen in the University Library.

Clark, in the consciousness of his natural sagacity, ventured upon problems which had hitherto seemingly defied solution. His attention was drawn to the great Berkleyan puzzle as to the reality of the external world. He made some attempts to grapple with this difficulty, but abandoned it; evidently losing hope. His actual suggestions by way of solving the difficulty amounted to little or nothing.

In religion, he became early disencumbered of the prevailing orthodoxy, and felt that here was a field for his inquiring mind which might bear important fruit. Looking at the unsatisfactory results achieved by our natural theologians, he made the remark that "surely it ought to be possible to find out the habits of the Deity," by a still more sifting examination of the phenomena of nature, directed to that end. This, however, he did not pursue; and there is no ground for supposing that he would have attained more success than others before him had done.

On my coming to Rothesay, in the end of 1848, where I had parted with him a year before, I found he had made way with an entirely new research bearing on theological controversy. This was the mutual relationship of the three Gospels, Matthew, Mark, and Luke. He had made a series of pastings of parallel passages from these three evangelists, using the Authorized version. In one, he followed the course of Matthew, and put at its side the corresponding passages of the two others; in another, he followed the order of Mark; and, in the third, the order of Luke. A study of these parallel pastings he deemed proof positive of the derivation of Mark from Matthew and Luke. He even laid down the scheme that Mark had proposed to himself in appropriating the material of the two others. Probably, no one had thought of using

the same mechanical facilities for dealing with the question of the mutual dependence of the Gospels. Regarding the sources of Mark's Gospel as established beyond question, he next endeavoured to settle the priority and dependence of the two others. This was far less conclusive. All that he could make out to his own satisfaction was that Matthew was prior to Luke—that Luke had Matthew before him, and adopted its contents very largely, with certain changes, while evidently making use of some other materials not now extant.

From these comparisons Clark drew certain inferences respecting the credibility of the Gospels, which were by no means in accordance with the common views of Christian theologians. He might have stopped here, and exhibited his manner of proceeding and the conclusions he had arrived at for the judgment of the general public. Such, however, was not his way. Thinking that the cogency of his views could be much more severely tested by carrying the research a step further, his next object was to avoid the irregularities of our translation by making the comparisons upon the original Greek. Verbal coincidences had very much to do with the points he was driving at, and hence his motive for working upon the originals. He was no Greek scholar, but acquired a sufficient familiarity with New-Testament Greek to qualify himself for repeating the comparison upon the Greek original. Instead, however, of working at once in this way and obtaining whatever elucidation might be gained by so doing, he saw fit to raise up another difficulty,—namely, uncertainty of the readings, which at that particular time had been brought into public prominence. He would not, therefore, take another step until he had seen what effect these differences would have in a comparison of the originals. Upon this rock his whole enterprise was shattered and rendered nugatory. It was too much his way to expend strength upon settling

particular points that had only a very small bearing upon the great issues involved, and to consume his valuable days in this manner. His determination to settle the text became a fixed idea, and occupied the closing years of his life, without his ever being able to return to the main purpose of the whole, on which alone public interest could have been evoked. He had, nevertheless, by help of a careful assistant, who afterwards became professor of Biblical Criticism in Glasgow, prepared a series of tables, showing the relative value on MS. authority of the diverse readings in the three Gospels. This he left at his death to be edited and published by Dr. Donaldson, of the High School of Edinburgh; but his wife's family, who were members of the United Presbyterian Church, and who always had suspicions of his heterodox tendencies, interfered to suppress the publication of what was, to say the least of it, a most masterly research.

In every point of view, the intimacy with Clark was highly educative to all of us of the younger generation who had enjoyed his friendship. His sagacity extended widely over public affairs and the conduct of business in our University and otherwise; and we had the greatest reliance upon his judgment in whatever department it was brought into exercise. I have only to add, in explicit terms, what has already been more or less implied, that from no other single man did I obtain the same amount of assistance in regard to English style and composition.

To recur to the work of the session. I gave up two hours a day to the Anatomy class of Dr. Allen Thomson, which was properly a medical class. Thomson was certainly a most accomplished and accurate anatomist. His lec-

turing was lucid, but entirely wanting in emphasis or prominence, which impaired its effect. The chief business of an anatomical lecturer was to show in actual specimens the parts of the human body; the students having to help out their memory by the text-books. What I could do was simply to take in the amount of detail usually mastered by the first year's medical students, and it was with these that I competed, at the end of the session, for a place in the prize list. I went into the dissecting-room and made a complete dissection of an arm, for more perfect familiarity with the bodily tissues. We acquired a certain amount of physiology, as well as anatomy proper, but this could not be carried far. The entire course made a most valuable groundwork for future studies in Physiology, and, to a certain degree, in Zoology, in which my information was desultory, and derived more from books than from regular instruction.

Various other labours had to be comprised within this session (1840-41). I had to deliver a second time the course of Natural Philosophy lectures to the Mechanics' Institution; and, although the lectures were very much the same, an entirely new introduction had to be prepared at the moment when the business of the Institution was unusually exigent. The topic was character-

istically chosen. The psychological principle of similarity, which so occupied my mind from first to last, had recently been followed out on its emotional side,—namely, the throb or flash of pleasure attendant on all great strokes of similarity in diversity. I dwelt upon this topic in the introductory lecture, which admitted of abundance of illustration in the physical sciences.

As already explained, I had suggested to the editor of the *Westminster* a scientific topic for a second article. On the 20th of December, he accepted my proposal for a paper of sixteen pages on “The Accurate Investigation of the Properties of Matter,” to appear in April or in July. This, of course, became part of my occupation in the early months of 1841.

This essay rose above the region of mere exposition to the ambitious attempt of laying down rules of inductive discovery or invention, by the help of a definite procedure. The procedure was divided into four distinct stages or prescriptions—namely, “to express every fact in as definite language or by as definite and true parallels or imagery as it is possible to use; to express it, also, in as many different ways as possible, provided each is precise; to give separate expression and attention to every part into which a fact can be divided; and to extract

from every fact all the conclusions that are necessarily bound up with it". The rules were copiously exemplified in connexion with the atomic constitution of matter, which was regarded as made up of ultimate particles under the balance of the opposing forces of attraction and repulsion. The situation was viewed in every possible aspect, from the compact condition of solid matter to the altered condition of the gaseous state, where one force alone—repulsion—appeared to be present. The example that possessed most interest as the upshot of the research was the suspension of steam particles in the air when their repulsive force was withdrawn under cooling. It was inferred, with apparently irresistible cogency, that particles of visible vapour or cloud were kept from descending to the earth under gravity by their adhesive attraction to particles of air, and that their formation into raindrops was necessarily a protracted operation. This last inference has been confirmed in a startling way by Tyndall's discovery that, but for the intervention of dust particles, the formation of raindrops would be quite impracticable.

The reception of the article in the *Westminster* was, on the whole, very favourable. Mr. Grote wrote to the editor, expressing his opinion of its merits, and desiring to know if the author had

written any other papers on Natural Philosophy. He also spoke to Mill in the same strain. This may be said to have been the beginning of my acquaintance with Grote, although it was several years before we became personally acquainted. Professor Spalding of St. Andrews perused the article, in connexion with my application for the Natural Philosophy Chair in 1846; and it helped to determine him to support my claims. The article did not find the same favour with the authorities on physical science with whom I came into contact. I knew Clark too well to expect him to allow any merit to the mode of procedure recommended, and I never brought the article under his view. It was somewhat different with Graham, who got to know what I was driving at through some observations I made on a paper of his at the British Association in 1845. His remark was that the processes inculcated would very soon reach their limit—which was quite true, but did not necessarily render them useless, as the examples actually showed. Both Graham and Clark had a supreme faith in experiment as such, of which they were pre-eminently masters. Neither put much stress upon mathematics; not being mathematicians themselves, and not dealing in the class of researches most suitable for its aid. Still less

would they think that any discoveries could be made by mere separation of complex facts into their several constituents, with the view of concentrating attention upon one at a time. As to laying down a rule for formally drawing up a list of examples under a given generality, they and most other scientific inquirers would consider the direction superfluous. Notwithstanding all this discouragement, I entertained for the time the idea of inculcating an art of discovery, as Bacon had done in the *Novum Organum*. His directions were very generally considered futile; still, something was done even by Herschel and by Whewell in their generation to follow in his wake, with improvements in the detail. It was my belief that pupils might be so indoctrinated as to prepare them for the intellectual side of research; yet, in point of fact, I never did succeed in making the requisite impressions upon any one but myself. During the whole of my studious career, I had in view those maxims of procedure, although I seldom—yet sometimes—went through all the formalities embodied in the article in question. In the *Inductive Logic*, under the heading, “Art of Discovery,” I brought together every device within the compass of my knowledge or experience that could claim to be helpful to the mind in original investigation, whatever the subject might be.

Another composition falling within the same session, was an essay on a psychological topic, entitled "On the Use to be made of a Precise Knowledge of the Limits of the Human Faculties". The stress of the paper was laid upon the fact that, broadly speaking, the human mind can attend to only one thing at a time; in which respect a contrast is made between humanity and divinity. The practical carrying out of the supposed limitation is to analyze all complexes into their smallest parts, and to concentrate the mind upon each *seriatim*. In point of fact, the essay was another exemplification of the process which was uppermost in my early published papers,—*viz.*, of exhaustive study of each individual fact, or part of a fact, that could, for the moment, be taken in isolation. In all probability, the composition of the essay went on in conjunction with the paper for the *Westminster*.

The remaining incident of importance in this eventful session was a visit to Edinburgh, early in March. My friend Robertson, having interested himself very much in the Non-Intrusion controversy as a political question of the day, had visited Edinburgh to converse with the leaders. He took the opportunity to introduce my name as one that might be made available for some

occupation involving literary work. I thought it worth while to make a journey to Edinburgh before the session was concluded, to ascertain what was really meant by this proposal. Provided with his introductions, I saw in Edinburgh Candlish, Dunlop, and Welsh, while taking up my abode with Masson, then a student in the Divinity Hall. My reception was most courteous and flattering ; nevertheless, I saw plainly enough that any work that might be carved out in that quarter would not be likely to fit in with my special aptitudes and aspirations. Dunlop and Candlish kept up their friendly interest, and were ready to serve me on subsequent occasions in matters unconnected with their own particular walk.

During this visit, I heard a lecture from Chalmers in the Divinity Hall. I also attended a sitting of Hamilton's class, which, however, was occupied with the exercises of students, read by themselves. It was so far interesting from the topic—namely, the laws of association—and from the manner of treatment, which was abstract and formal to a degree : there was not a single concrete example in any one of the papers. I likewise heard a lecture from Professor Wilson. His subject seemed to be the *criteria* of moral virtue or merit ; and the lecture concluded with a high-flown panegyric on our own King Alfred.

Summer Recess, 1841.

The close of the session found me very much out of sorts. A severe cold kept hold of me for some weeks: influenza was then in one of its epidemics. The essay on Matter being accepted, although not yet published, I was thinking over other topics for composition. I had given to the Theological Society, in March, the essay "On the Limits of the Human Faculties," and now prepared a dissertation, entitled, "On the Acquisition of a Knowledge of Human Nature," read on 15th May. The essay was purposely confined to the collection of facts regarding our moral nature; the intellect being left over, and never, apparently, taken up. There is a blank of information as to the occupations of the summer, until the outcome of my proposal, made in the autumn to Hickson, for a third article. In some interesting correspondence I had with Masson, he made special reference to his readings in Bacon's *Advancement of Learning*, such as his *Philosophia Prima*, etc., all which he considered on the track of my proposals for inductive discovery. This was quite true, and very much in point. Bacon had even a more exaggerated view than I entertained of the possibilities of invention by force of good

methods. Masson also adverted to Carlyle's book on *Heroes*, which he had just procured. He had himself written and delivered essays on greatness and great men, and had the opportunity of comparing his handling with Carlyle's. My own acquaintance with the book came some time later.

During the recent session, Dr. Glennie's class had been conducted by Mr. Duirs, as substitute, who had acted in the same capacity in the previous session, in the middle of which Dr. Glennie had broken down. Duirs having obtained another appointment, could no longer continue to conduct the Moral Philosophy Class. Dr. Glennie applied, in the first instance, to John Shier, who had served as substitute in the Natural History Class for two sessions, and was set free by the appointment of a successor to Dr. Davidson. Shier declined the task, as not being in his line, and suggested me instead. Glennie said no more, but let it be understood that he would apply to me later on. Meantime, Shier was bound to confidence with regard to what had passed. As a matter of course, he mentioned the thing to myself, and the communication went no further.

The probability of my being appointed Glennie's assistant, must have had some effect

in determining the plans for the summer. It was in the autumn months that the most important incidents occurred. Towards the end of August, Glennie made his distinct proposal that I should become his assistant; and the agreement was concluded, accordingly.

On the 6th of August, my father died, at the age of fifty-six. His ailment was sheer exhaustion, the digestive organs having been utterly worn out. He had a fine natural constitution, but his hard life, first in the army in Ireland and then as a toiling artisan at home with very indifferent fare, more than accounted for his premature end. At the time of his death, I was in possession of the secret that I was to be offered by Dr. Glennie the post of his substitute in the Moral Philosophy Class, but I did not communicate the fact to my dying father. This was in keeping with the stiffness of the relationship between us, all through life.

Soon after this event, my elder brother was married, and took up house for himself. Although I continued to find sleeping accommodation in the rooms occupied by the family when all together, and still kept on by those that remained, I boarded at my brother's house during all the winters of my teaching connexion with Marischal College.

It was in the end of August that Robertson came north, and took rooms in Aberdeen for a stay of many weeks. I saw him very frequently, indeed, almost daily, during that time, and Masson joined us for the whole of what part of his holiday he gave to Aberdeen. The natural consequence of this opportunity was to hear a very great deal about London literary and political life, as well as to discuss every variety of topic coming within the compass of our minds. It was then that the project was hatched of my paying a visit to London in the spring following. Robertson showed me the letters that he received from Mill, which, of course, were full of interest. One that he allowed me to peruse is dated 7th September, and contained, among other things, this sentence, "I am doing and thinking of nothing but my Logic, which I shall soon have re-written the first half of, ready for press". Robertson had encouraged me to address a letter to Mill on my own account; and to it I received an answer on the 21st September, expressing great interest in my views and pursuits, and speaking in favourable terms of the recent article in the *Westminster*. He specially called my attention to Herschel's article in the *Quarterly*, on Whewell's books,—of which he afterwards made good use in his own contention with Whewell.

In a second letter, in answer to one partly instigated by Robertson, he talked further of his scheme of Logic, and made the earliest reference to Comte that I had yet seen: "Have you ever looked into Comte's *Cours de Philosophie Positive*? He makes some mistakes, but on the whole, I think it very nearly the grandest work of this age."

In a further letter, of 5th November, he offered to send me, and he did send, a copy of his father's *Analysis*, which I perused with close attention, and often went back upon. He also promised to introduce to the editor of the *Edinburgh Review* any article of mine that might be deemed suitable. Robertson had made the same offer; but I doubt whether his recommendation at the time would have had weight. Robertson further suggested the idea of my taking a clerkship in a Government office, which he considered he had sufficient influence to obtain. I gave him no encouragement to make the application.

Robertson, although making considerable pretensions as a thinker, was undoubtedly stronger in literary style. The intercourse we had with him (Masson and myself) was eminently stimulating and valuable in this respect. I can remember his taking up a number of the *Edinburgh Review*, containing Macaulay's article on Ranke, and

reading with admiration the "New Zealander" paragraph. That, he said, was the style which made a literary name, and he used to couple Macaulay and Bulwer Lytton as the great literary successes of the day, and as his special envy in his own very unsuccessful career. In point of fact, if he had only possessed their industry, he might have been a success too.

Winter Session, 1841-42.

It was in autumn of this year that I made a further proposal to Hickson, giving him the subject of "Toys". On the 16th October, I got his acceptance, in which he expressed the hope that the topic might be so treated as to attract readers whom the previous articles might have repelled. He gave me very little time for its composition, only till the last week of November; thus covering the first weeks of my Assistantship in Moral Philosophy. I had no Mechanics' Class this winter, and gave the Natural Philosophy notes into the hands of a member of the Institution, who made use of them for the winter.

The article appeared in the January number of the review (1842). It was an ambitious attempt to unfold the psychology, not merely of

toys, but of many other interests that seemed to be closely associated with them. The centre and turning-point of the whole treatment was the Law of Similarity, which was for the first time developed on the scale given to it in subsequent psychological compositions. The applications were so far legitimate, but overdone; the facts to be explained as occurring in the life, not merely of the child, but of the grown-up individual, requiring sources of emotional interest beyond what could be properly referred to this intellectual principle. As may be seen from more recent attempts to expiscate the mental workings of childhood, there is still much to be done for this portion of psychological inquiry.

While there was no want of endeavour to make the paper intelligible and interesting by the illustrations adduced throughout, it laid itself open to the criticism of being a somewhat incongruous union of lightness in the end, with gravity in the means; a criticism freely applied to it, as I learned both from Robertson and from Mill, as well as from the editor himself. Its real interest now lies in the point reached in the enunciation of the two great intellectual laws.

It appears that I had read to the Theological Society, in the course of this winter, an essay

on "Faith," and another on "Moral Greatness". These must have been my last contributions to the Society. A substitute was soon found in a different quarter.

A small knot of class-fellows, including, besides myself, John D. Milne, George Walker, John Christie, David Mackinnon, Alexander Cruickshank and his brother John, Alexander Cromar, and John Ogilvie, formed into a society or club to meet weekly in Duguid Milne's office, for the reading of papers and discussions. We came to the task with the utmost zeal, and the studious co-operation of a certain number lasted for several years, and led to important results. There is no remaining minute that would show the several contributions of the first winter. One I can remember was by John Christie, who gave an abstract from Gregory's lectures, of the animal chemistry of Liebig; Gregory having the same winter given portions to the Philosophical Society, of which I was not yet a member. Christie soon left for London, where he had a chequered and unfortunate career. He made himself useful to me, in my successive visits to London, by finding lodgings, and otherwise; and I was the means of securing for him openings and assistance, when he had completely failed in obtaining a medical practice.

We received a dreadful shock by the sudden death of John Cruickshank, which took place, from scarlet fever, in the beginning of February, after a week's illness. To his father the blow was severe, and the loss irreparable. It sensibly told upon him, although he was still in the full vigour of middle age.

It so happened that I was disengaged during the hours of his two chief classes, ten to eleven, and twelve to one. I offered at once to take charge of these classes, until after the funeral. He accepted my offer; and I got through the work, although the strain was severe.

In the beginning of this year, Andrew Findlater was appointed head master of Gordon's Hospital, which was the commencement of my acquaintance with him. I frequently visited him at his residence in the Hospital, and found him highly sympathetic with my own views and opinions at the time. He was a hard student, already knew French, and soon applied himself to German. We two were pretty much in the same theological stage, as well as being in sympathy on philosophy and education. The following year, which saw the publication of Mill's *Logic*, and the introduction of Comte's *Philosophie Positive* to the English public, found him prepared to take the full benefit of both works.

In addition to the incidents extending into the first months of this year, already referred to, there remains an important communication from Mill in answer to letters of mine. On the 18th February, he wrote a long letter, partly in reply to my inquiries as to the best available sources of political philosophy. He went over the writings of his father, Bentham, De Tocqueville, and Coleridge, all of whom still left much to be desired. He then descanted upon the management of the *Edinburgh Review*, to which he hoped that I might sooner or later gain admission. The survey was very curious, and, I suppose, accurate.

A letter from Robertson in March was full of preparatory instruction as to conduct, etc., on my arrival in London, which was soon to take place.

I may here introduce, once for all, a precise account of my mode of conducting Dr. Glennie's class for the three successive winters, the first of which had now closed.

Being his assistant, or, more properly, substitute, I was expected to go to work strictly upon his own MS. From attending the class as a student two years before, I knew very well what his lectures consisted in. There was, first, an abstract of the whole course, which was dictated and taken down *verbatim* in the morning hour, and had been hitherto the sole occupation of that hour. The class formerly met fifteen hours a week; six being occupied with dictating, and the other nine with lecturing

and examinations. A change was made this year by the Senatus, in striking off the afternoon hour from all the principal classes, and leaving two hours a day for every day in the week. The loss of three hours was partly made up, in the Moral Philosophy Class, by giving a full hour of sixty minutes, in room of the former usage of beginning each meeting ten minutes past the hour. One consequence was, that not more than three-quarters of an hour could be spared for the time-honoured process of *dictation* or “diting”.

There remained then the lecturing, which consisted of read lectures, repeated from year to year in identical form. While Dr. Glennie himself was able for the work, he had a third MS. compilation; being a set of written questions which were the material of his *vivâ voce* examinations. Like many abler men—for example, Sir William Hamilton and Dr. Thomas Chalmers,—he had no power of ready utterance, and could not make the simplest communication to his class without a MS. I was put in possession of his original copy of the notes, although, of course, I might have had a copy of my own, and also his lectures in successive instalments. The volume of questions I did not receive. It was the understanding that I should abide strictly by his MSS. both in dictating and in lecturing. It was also my own wish to do so. I had not the smallest desire to make the position a medium of imparting views of my own, or even of putting Dr. Glennie’s ideas into my own language. I was, however, very well aware of the difficulties of the task. I knew, both from my own experience as a student and from the traditions of the class, that Dr. Glennie was himself, even in his best days, totally incapable of keeping up the interest of the students. In his more vigorous years, he was able to maintain order and discipline in the numerically small classes of the fourth year. Latterly, with failing strength, his discipline broke down; and the

class, although not obstreperous or riotous, was generally inattentive, with the usual consequences of alternative employments such as students can readily devise. How to conduct a class in such circumstances was, to me, a very serious thought, as will appear when I describe the nature of the lectures themselves. For one thing, the lectures and the notes—as already said—did not run in parallel lines. There was a certain amount of coincidence, rendering the lectures so far the expansion and illustration of the notes, but with considerable deviations and inversions of the order, which made it impracticable to adapt the one to the other. This circumstance alone was fatal to teaching success, and was indeed the greatest stumbling-block in my way. I went on with the dictating readily enough. It was an easy occupation, taking up the great part of the morning hour. Like Glennie himself, I made an attempt to read the lectures *verbatim*, but foundered upon the same rock as he had done,—namely, inability to hold the attention of the class. Even those that were willing to be taught, failed to unite the two streams into a coherent whole, and I clearly foresaw a repetition of the previous experience of the class. After a few days of this hopeless and unprofitable undertaking, as an alternative I ceased to read the lectures, and gave an extempore expansion and illustration of the notes themselves in their own order. By such means, I was able to keep up attention and maintain discipline in a tolerable fashion. In the course of the three years, I made some gradual innovations in the notes themselves, still of a very limited amount. I have no record of what these were; but, for one thing, I believe I inserted, under the “Intellectual Powers,” something of the laws of association as conceived by myself at the time. Aware that I was playing a double part, I observed every precaution to avoid making this apparent to Dr. Glennie. His chief opportunities of checking my fidelity to the

engagement were these two. In the first place, the only essay work he was in the habit of giving himself was the single annual prescription of the subject, "Acquired Perception". I gave the same prescription, at the same place, and no other. He always asked to read the essays. Although I, of course, kept very close to his own views and language, in expounding the topic, the students could not be prevented from wandering into other parts of the course, where my hand may have been more apparent. The other occasion when I might possibly have been censured was the examination at the close of the session. Here, too, he had always kept within a narrow compass of questions, and I gave a selection from those questions. After reading the answers myself and deciding their value, I left them with him for his perusal. I have no doubt that, from the first, he suspected me of departures from his line of teaching; but, so long as the class was conducted in a quiet and orderly fashion, he was prudent enough not to make his suspicions a ground of quarrel. At the close of the first session, he was quite cordial in wishing me to act in the session following; the invitation being repeated for a third time.

Of Dr. Glennie's lectures I am able to speak, from having had them all through my hands, however little able I was to adapt them, in teaching the class. I may mention that he became Beattie's assistant in 1793, and, of course, obtained Beattie's lectures to work upon. How he managed in this capacity, I have no means of knowing. Doubtless, he read the lectures as they were. I presume, however, that he had no such difficulty to encounter as I have described in my case; while Beattie's composition was probably more attractive than what of his own he put into my hands. This much I could gather from my examination of the course as I passed it in review. On his succeeding to the chair in 1796, when he would be free from any obligation to keep to Beattie's lines, he

seemed to have begun the composition of an independent course of lectures. As he had a clerical duty along with his professorship, and was not a rapid worker, some considerable time may have elapsed before his achieving the end in view. In strict fact, he had not at the last replaced Beattie's entire course. On the subject of language, treated according to the philological method of the last century, there were materials for probably three or four weeks' lectures in Beattie's handwriting. Possibly, he did not think he could improve upon Beattie, and so retained this portion without change. The remainder of the course was in his own handwriting, and was tolerably brown with age; being, no doubt, composed in the early years of his professorship. There was, it appears, an attempt on his part to produce a second version of the course at a comparatively recent date. The first batch of MS. that came into my hands belonged to this revised version. It soon stopped short, however, and certainly would not occupy a fortnight of the session. There was one interesting excursus in the case of the deaf and dumb boy Mitchell, in which Dugald Stewart took especial interest, and induced Glennie to contribute by personal investigation of Mitchell on the spot. His results were imparted in a paper to the Royal Society of Edinburgh, which paper he read *in extenso* to the class, and expected the assistant to do the same.

As to the sources and the quality of Glennie's lectures, a few indications are sufficient. His basis was mainly the Scotch School, as represented by Reid, Beattie, and Campbell; although he did not limit his studies to these. He was content, for the most part, to expound their views generally, but not always in his own language; by which I mean, that he made very large drafts upon his predecessors in the form of *verbatim* extracts. He was, however, perfectly lucid in his own composition, his style being fashioned by help of our English literary classics.

If the material had been presented to the class in a better mechanical form, and free from the objectionable complications already mentioned, it might have gained their attention and interest—which, from the testimony of tradition, it never did. He gave a long dissertation, after Cicero, on the *honestum* and the *utile*—the Latin rendering of the Greek couple *καθήκον* and *κατόρθωμα*,—of all which the students usually remembered only the leading terms, and not always that. It was, however, in connexion with the Active Powers that he made his most fatal exposure to the derision of the class. Under these, he borrowed whole chapters from Reid's *Active Powers*, without changing a word. Here was the students' opportunity: Reid was duly brought into the class, and compared with the spoken lectures. This practice must have gone a considerable way back beyond the time of my contemporaries. I found a written passage in the lectures showing that Glennie had taken notice of the circumstance, and thought proper to apologize for it. The apology was somewhat curious, as I remember it. It went on to say that he had observed in the class that some of the students had brought with them printed works, from which he had been deriving portions of his lectures. He, however, was not ashamed to own that he did avail himself of the works of the best authorities on his subject, and made use of their expression instead of his own. He added that, when he was at College, the professor, on observing a student with a printed work in his hand, from which a lecture had been taken, would ask him to stand up and read the book, himself making his own remarks where he agreed or disagreed with it. No doubt, this practice of verbal copying, as well as the diting of notes, entered pretty largely into the professorial teaching of the earlier times.

I continued assisting Glennie for three sessions,—*i.e.*, till April, 1844, and all this time was in the most amicable

relations with him and with his family. I had grave doubts about continuing another year; partly because I thought my time was not sufficiently rewarded, unless I could look to be his successor, and partly also because I dreaded having in the class a grandson of his own—whose notes he might ask to see, and thereby become more completely aware of my deviations from his lectures.

Summer Recess, 1842.

In the beginning of April, the winter session closed as usual, and I parted with Dr. Glennie on the best of terms. He expressed the wish that I should resume the assistantship in connexion with his class next winter, if I found no better engagement in the meantime.

After a short run in the country, I set out for Edinburgh, to spend a few days with Masson, on my way to London. I had friendly interviews with Candlish and Dunlop, and was invited to a dinner party by Dunlop in his bachelor establishment. It comprised Guthrie, Hugh Miller (now editor of the *Witness*), and Gibson, Inspector of Schools. There was abundant talk about Church matters; and I contrasted the genial easy-going views of Guthrie with the strict and severe attitude of Dunlop as regarded Church policy. I had a pleasant day's excursion with Masson and his friends, the two Russells and Ruffini, to the

Compensation Pond,—which was my first introduction to all the three. In after visits to Edinburgh, I kept up the friendly relations with each.

Leaving Edinburgh by steamer, on 23rd April, I reached London late on the evening of the 25th. Robertson had looked out a lodging for me in Mortimer Street, Cavendish Square; and, on the following day, he took me down to the India House to Mill. My first impressions and arrangements for meeting him are fully given in the Mill biography, to which I may have something to add, but which I need not repeat.

My next introduction was to Neil Arnott, with whom Robertson was on relations of intimate friendship, and who was always ready to receive and welcome young men from Aberdeen. My first call was during his consulting hours, when I could stay only a short time; but I was at once fascinated by the originality and suggestiveness of his conversation, and his broad views on a variety of subjects; having hitherto met no one that could compare with him in these peculiarities. I had long been familiar with his *Physics*, as well as his inventions; but I found his compass of thought still more extensive. His was one of my lasting friendships; and I ultimately became his executor and biographer. At his

weekly bachelor dinners, I first met G. L. Craik and G. H. Lewes, whose arrangements made them habitués of the party. Others were Wheatstone, Andrew Bisset, Dr. Sharpey, Alfred Taylor, besides a number of Arnott's acquaintances whom he chanced to meet and invite for each occasion. Most important of all for me was Edwin Chadwick. He entered the drawing-room for one of the dinners of this summer, carrying in his hand a gift copy for Dr. Arnott of his general sanitary report of 1842, which was the great epoch of sanitary legislation. He was still secretary to the Poor Law Commission, but had concentrated his energies for a considerable time on the preparation of this report. I saw a good deal of him in the course of the present summer, and was much in his house during succeeding visits to London.

It was not long ere Robertson in his zeal was able to introduce me to Carlyle, after a little hesitation as to whether I should be welcome. However, he obtained the requisite permission; and Carlyle was quite friendly and gracious. The first meeting naturally produced a deep impression, and I remembered ever after the chief points of his conversation. One of these was a reference to solicitations made by leading men in the popular Scotch Church party to the effect that

he would in some form express his sympathy for the struggle then maintained in favour of popular Church principles. What he actually said he did not repeat, but made this observation—“All that I could gather was that the Church of Christ was going to sticks”. However grandiose his declamation upon the spiritual aspects of religion and duty, he could not be made to enter seriously into a practical movement such as the one pending. Another remark was more in his usual style of denunciation of current theories for grappling with the depravity and degradation of the time. It was characteristic, and shaped, no doubt, by the accidents of his own literary labours—“I have tried many recipes, Wordsworth and the rest, and, but for the French Revolution and German literature [his special wares at the time], I see very little hope for this old earth of ours”.

Having once been received in a friendly manner, I continued to be a calling acquaintance during the whole period of my London residence, down to the year before he died. I believe it was in the autumn of 1841 that I read his book on *Heroes*, and derived from it a portion of the stimulation that it gave to the then young generation. From that time forth, I was a reader of his works as they appeared, and may be said to have acquired a thorough mastery of them

all. One work I had occasion to review,—*viz.*, the *Cromwell*; but it never happened to me to give a summary criticism of his writings and character as a whole.

By way of introductions, I received from George Innes parcels to deliver to his astronomical friends in London. They were the means of affording me interesting peeps, but made for me no permanent acquaintance. One took me to the Greenwich Observatory for the Astronomer Royal, Airy; but, though he made his appearance, he was so obviously bored by the intrusion, that I was content to spend a couple of minutes in seeing the antiquarian portion of the Observatory, which contained Flamsteed's quadrant, whereby he had made his observations for Newton, in connexion with his astronomical problems in the *Principia*. Francis Baily was more agreeable and conversible. Several of the others expressed a curiosity to know about Innes, whom they looked upon as somewhat eccentric.

From Dr. Cruickshank, I had a letter to Captain Pickering, of the Royal Artillery, resident in Woolwich Park. He showed me all the sights of Woolwich, as it then was. The most interesting was cannon and mortar practice, in firing at a flagstaff as a mark. Following with the eye the shot and shell through

the air to the mark was to me a novel sensation.

Most important of all my letters of introduction was one from Clark to Graham. He took notice of it at once, left his card at my lodgings, and very soon invited me to breakfast with him, along with some of his then laboratory pupils. I went frequently to his laboratory, and rapidly confirmed my acquaintance with him. As an adviser and a friend he was inestimable, and there was no man that I admired more. His scientific intellect was second to none in his generation; while his business qualities established him at the head of the society organizations in connexion with chemistry. He was eminently cool, judicious, and circumspect, and withal, unassuming to a degree. While careful to avoid giving offence, he could be courageous when the occasion demanded it. This was shown in his famous letter to Bailie Gray of Edinburgh, at the time when the chair of chemistry was about to be conferred on Samuel Brown. His *Elements of Chemistry* had been out when I attended the chemistry class; and I made full use of it in connexion with Clark's lectures.

Wishing to see whether Faraday would give an opinion upon my article on "Matter," I got an introduction to him from Dr. Arnott, and saw

him at the Royal Institution ; but, from his way of talking, I soon discovered that his nervous power was not equal to the effort of reading other people's work. Indeed, he said so himself. However, he gave me a ticket to the next Friday evening lecture at the Institution, which consisted of an account of Chantrey's foundry for casting his statues in bronze. My only chance of hearing Faraday himself lecture was some two or three years later, upon his discovery of the magnetic property of the oxygen of the air. His manipulation was marvellous ; but, in the endeavour to follow out the speculative consequences of the discovery upon the motions of the atmosphere, he was confused and unintelligible.

Among the greater sights of London were, of course, the cathedrals and churches. In our walks from the India House, Mill made suggestive remarks on the styles exhibited on the way, including St. Paul's and the other churches by Wren. He descanted on the contrast in principle between Greek and Gothic architecture, very much according to the current theories of religious architecture. He treated of recent London architecture with considerable disfavour ; remarking that London had no great building subsequent to St. Paul's.

As regards openings for teaching work, I

was occupied principally with the pursuit of two different chances. One came through an introduction by Mill to Kay Shuttleworth. He was extremely anxious to devise some employment that I could undertake within his department, and made me go down to his newly-instituted training college in Battersea, where I stayed a week. All that came of it, however, was his offer of a situation at Greenwich Hospital, nominally worth £150, but which, he considered, might be worked so as to yield a great deal more. The occupation being very much of the nature of a common school, I did not feel disposed to enter upon it. The sort of appointment that would have suited me would have been to give instructions on one particular subject in a scholastic establishment, such as had been arranged by Shuttleworth for his training college.

The other opening was of far greater promise. I had been introduced by Mill to Melville, the secretary to the Court of Directors, and to Colonel Sykes, then a member of the Court. It appeared that a vacancy was soon expected in a chair of Natural Philosophy and Astronomy in Bombay. I was advised to become a candidate, and to procure testimonials to be in readiness, which, of course, I did. A communication was expected by the Indian mail for June. If no

alternative arrangement was intimated, a letter had passed the Court of Directors recommending me, which would accompany the despatches for the month. The reply to this would take two to three months. In point of fact, nothing ever came of the letter. I could not say that I was very much disappointed, having doubts as to my enduring a long sea voyage and the climate of India.

In the beginning of May, there occurred an opening in Aberdeen—*viz.*, the editorship of the *Aberdeen Banner*,—through the retirement of Troup, the first editor. By Robertson's advice, Baillie Henderson, on the part of the managers, wrote giving me the offer, at £150 a year, which I declined at once, and thereby incurred Robertson's displeasure. I did what I could, however, to secure the appointment for Masson, who was exceedingly anxious to get into a writing occupation. After seeing the managers—one being Dr. Brown, with whom he had been an especial favourite at College,—he was successful, and remained at the work for a little over a year.

Masson pressed me for some contributions to aid him at the outset, with the result that I sent a leader on the opening of public places, which was then beginning to be agitated by Joseph Hume and Henry Cole. The article was

found fault with in Aberdeen for not sufficiently guarding against the Sunday opening of such places, which Hume and Cole both favoured. Another article that I contributed was on Subscription. The drift I do not remember ; but I presume it was an attack on Tests.

A third, entitled "Examinations," proposed a means of testing moral or emotional intensity of character—one of my hobbies at the time. It seemed to have interested Candlish. The requisite criteria for emotional quality could, no doubt, be assigned ; but the attempt to carry it into practice would incur the risk of defeat by simulation. Afterwards, I had abundant opportunities of advising Masson in his editorship during the winter in Aberdeen.

At the India House, I had another interesting introduction—to Horace Grant, a special friend of Mill, and the author of several education manuals, which were conceived in a very advanced view of education, for the time. He was a somewhat sanguine theorist, but was well ballasted by good sense, and was an interesting man to converse with. In London, he was considered the most likely person to have written the article on Toys.

I believe it was during this summer that I made the acquaintance of Dr. Carpenter, through

Mill, whose younger brother George had been living at his house as a pupil. I never failed to see Carpenter in the London summer visits. Mill had been very much impressed from the outset by his writings on Physiology.

On May 4th, I went to the House of Commons for the first time. The occasion was the introduction of a Bill by Campbell of Monzie for the settlement of the Church question. The speakers were Campbell himself, Graham, Peel, and Fox Maule. Peel talked of trying to do something to settle the question.

For reading occupation during vacant hours, I was partly supplied from Mill's library. He gave me Carlyle's *French Revolution*, which I had not hitherto seen; also *Sartor Resartus*, and a volume of reprinted essays. He supplied me with romance in the shape of Bulwer's novels, which, I have no doubt, were gifts from the author, with whom he was then intimate; having contributed to his work on "England and the English," a chapter on Jeremy Bentham. (I heard much of Bulwer and his being identified with Liberalism and the Liberal party. His Sunday dinners in Sackville Street were familiarly talked of.) I also had from Mill, Helps's first work, *Thoughts in the Cloister and the Crowd*, with which I was greatly struck. Subsequently, I

had occasion to peruse Helps's maturer writings, and to utilize them as illustrations in rhetoric. Mill also lent me a portfolio containing articles of his own contributed to various periodicals. They included a series of analyses of Platonic dialogues—which were to me a novelty—and gave me my first introduction to Plato. They were contributed to the *Monthly Review*, edited by W. J. Fox, and having James Martineau also as a contributor.

Mill made an attempt to interest me in Wordsworth, who had proved so great a solace to himself. Of the six volumes, after some deliberation, he selected one that he thought would be the best for a beginner. The endeavour was, however, fruitless; at that time I could not enter into the special merits of Wordsworth.

Having obtained from Dr. Arnott the needful introduction to the librarian of the British Museum, I could there command books *ad libitum*, and made use of the opportunity very frequently.

In May and June, I kept up an active correspondence with Aberdeen, a good part of which had to do with getting testimonials for the Bombay appointment. Dr. Cruickshank warmly encouraged the project; being more anxious for my success than I was myself. Others, however, regretted very much the possibility of my having

to leave the country. Incidentally, Cruickshank expressed disapproval of Masson's committing himself as a Non-Intrusion editor.

The Society at home kept up a communication as to their proceedings, to which I had to respond. One of the members, Cromar, had given a paper on Campbell and Byron ; he himself conducting the criticism in the usual manner of literary critics. The others were more or less inclined to the deeper philosophy of poetry, and sent me up their views. Accordingly, I had to contribute a dissertation on the Theory of Poetry, which must have been about my earliest in this department.

Being without a definite object in the way of preparing something further for the press, I set to work upon a physical investigation into the nature and conditions of heat ; studying the facts presented by the existing Physics and Chemistry. The subject was in the moment of transition. The best authorities were still very undecided as to essential points ; while inconsistencies could be pointed out in the utterances of the best authors. An incident in a blacksmith's shop had awakened my speculative daring, and seemed to suggest much more than anyone had as yet taken account of. It was the striking of a rod of iron with a hammer till it became red

hot, which needed only a quick succession of blows for a few seconds. This was the conversion of mechanical force into heat in a way that had not as yet been noted by experimenters in Physics and Chemistry. Friction was well known as a source of heat ; while the experiments of Rumford were eminently suggestive, and, in fact, should have led much sooner than they did to the law of conservation of force. The point that interested me in the smithy experiment was that the effect could not be repeated upon the same rod, until it had been first put into the fire, made red hot again, and left to cool slowly. In short, the heat extracted had to be re-stored before the iron could resume its former structural character. The operation had converted it from a malleable to a brittle substance ; the equivalent of the heat obtained was a structural alteration in the atomic constitution of the iron. Reasoning in the same line, I described the decomposition of a chemical compound—say water—as the restoration of the heat given out in the act of combining. As I was very soon interrupted in this enquiry, and completed it in a paper to the Philosophical Society the following winter, I reserve the further account of the attempt, and of its reception by the scientific members of that society.

Everything of the nature of study was arrested in the middle of July by Mill's proposing that I should revise the MS. of his *Logic*, now nearly written for the press. This occupied all my remaining time in London; and the search for examples to the inductive portion was continued in Aberdeen.

Walking with Robertson in Charing Cross, we passed the door of O'Connell's lodging just as he was coming out. Robertson, who had a Club acquaintance with him, introduced me, and we walked with him to the House of Commons. He got into talk about the College where he had been educated—a Catholic college somewhere abroad. On arriving at the House, he wrote me an order for the gallery. To my regret, I did not avail myself of it. I afterwards found that he had gone down to make a speech, which I missed; and I never had another chance of listening to his peculiar oratory.

In a walk to the suburbs, I came upon Putney Green, and found Father Matthew on a platform giving an address upon temperance. There was a considerable Irish colony in Putney, and he had gone there expressly on their account. In style and in manner, he was plain and sensible; nothing of either imagination or rant or exaggeration in any form. The Irish had evidently been

prepared to follow him ; and, as is well known, his success for a time was very great. O'Connell had seen fit to become a convert ; but I had heard the remark made that the privation of his usual stimulus had reduced his energy.

I made a second visit to the House of Commons on the 22nd July, and listened to a long debate on a motion of Duncombe relating to the existing distress. What clung to my memory was the appearance of Disraeli, who made a speech from a back bench in the slackness of the dinner hour ; that being, apparently, his only opening. The speech was notable for an attack upon Palmerston, the point of which was the iteration of the phrase, "the anti-commercial diplomacy of the noble Lord opposite". In his reply, Palmerston made the rather obvious quip, which he looked upon as crushing, that the proper remedy for the distress complained of would be to seat the honourable gentleman in the Foreign Office. Sir Robert Peel made a long speech, which was nowise striking or effective ; and Palmerston seemed to carry away the honours of the day.

On the first Sunday (3rd) of July, a sensation was caused in St. James's Park by the Queen's being shot at as she was driving down to the Chapel Royal. This was the second attempt of

the kind ; and it made a tremendous flutter in official circles. I happened to be in the Park at the time, and witnessed the whole affair. The Home Secretary was hurriedly summoned to the Home Office to settle what was to be done.

It must have been in the beginning of August that I saw, in the Reform Club, an enormous poster that had been brought down from Manchester, which said : “The Riot Act had now been read, and the mob ordered to disperse, and all who did not now disperse would be treated as rioters and disturbers of the peace—signed by the Mayor”. I had written in a letter : “It made my blood run cold to read it ; it seemed to transport me to the very spot”.

On the 11th of August, I was taken to a sitting of the Westminster Sessions, under the somewhat notorious Sergeant Adams. This experience of the manner of administering justice in a London Quarter Sessions was to me novel and remarkable. The demeanour of the poor wretches brought up for trial, and of their relatives, who hung about the Court, was very characteristic, and has often formed a theme for sensational description.

As the Royal procession to the opening and prorogation of Parliaments has long ceased, I may mention that I had this summer the chance of seeing it in its pristine glory. In the gilt

carriage, drawn by eight cream-coloured horses, the Queen sat with her Mistress of the Robes, the Duchess of Sutherland, at her side, and Prince Albert on the opposite seat. The Duke of Wellington, in his military costume, drove in his State carriage. (He was then, and years after, a familiar figure as he rode from Apsley House to the Horse Guards in the early part of the day, and, still more punctually, from the Horse Guards to the House of Lords at five o'clock, when the House met.)

In the middle of August, I had to give a definite answer to Dr. Glennie with regard to again acting as his assistant.

I had been in the way of witnessing in Aberdeen the mesmeric experiments which were then rife,—namely, the putting to sleep by passes and experimenting upon the effects, such as insensibility to pain, and giving way to suggestion of the operator. It so happened that I went to a party at the house of Mr. George Gow, chief manager in Truman's brewery, where an Aberdeen friend and pupil, James Webster, was one of the guests. In an evil moment, I attempted to mesmerize him by the usual passes, and put him into a most extraordinary and abnormal state, in which he seemed on the eve of suffocation. I was quite powerless to undo the effect; and he

had to be walked round the brewery premises for upwards of an hour before he could recover. This was my first introduction to a family with whom I kept up intimacy during all my stay in London, and subsequently. Mr. Gow was a Turriff man by birth, and came to be the head manager of the houses attached to the firm in London.

Having finished the reading of Mill's MS., I got away from London on the 10th of September, and made the voyage to Aberdeen by one of the clippers which had become an important passenger as well as goods conveyance in those days, when the change from the old world to the new in the matter of transit was taking place. The clippers formed a department of the London trade. They were a great improvement in speed upon the old smacks, and sometimes rivalled even the steamers; having been known to make the passage from London to Aberdeen in three days. In this case, however, the passage occupied close upon five days; but the absence of the steam machinery and the shaking of the paddles made the passage much more endurable to bad sailors.

After arriving in Aberdeen, I continued my search of examples for Mill, and had the assistance of Shier to correct some that were irrelevant, and suggest new ones. The session was to open

in six weeks, and I contrived an excursion to Deeside, before settling for the winter. I was now in close intimacy with Masson; and we discussed his topics for the *Banner*. In the month of November, I had finished all that I could do for the *Logic*, and the earlier portions were now passing through the press. It was arranged that I should review the work for the *Westminster*; accordingly, I received the sheets as they were worked off.

In a letter in the beginning of October, Mill was commissioned by Hickson to ask if I would prepare an article on Liebig's two books. The second, on animal chemistry, was not long out, and had been reviewed in the *Quarterly* by Gregory, the translator. Although I had collected a portion of my examples out of the *Animal Chemistry*, I did not feel qualified to review the book, still less to go back upon the *Agricultural Chemistry*, which Playfair had translated some time previously. I rather wished Shier to undertake something, perhaps for the *Edinburgh*; but Gregory had the whip hand by being able to give extracts in advance of actual publication. From seeing by my extracts the importance of the works, Mill thought it worth his while to read both for himself, and was exceedingly struck with their bold originality.

In December of this year, I became a member of the Aberdeen Philosophical Society, made up chiefly of Professors and Lecturers connected with the Colleges, with a gradually increasing number of non-collegiate members. In the following January, I gave the Society my first paper, concocted from the points elaborated in London in the summer. The topic was Heat, and the title, "An attempt to generalize and trace to one sole cause—*viz.*, the Liberation of Latent Heat—all causes of Terrestrial Heat". Starting from the simplest case—the heat of combustion,—I urged that this was a pure case of the liberation of heat latent in the oxygen of the atmosphere, and requiring to be restored, if the carbonic acid or steam, or other product had to be decomposed again. I made great use of the circumstance that the heating of solids led, first, to their liquefaction, and, next, to their becoming gaseous, while cooling reversed the process. In regard to combustion, I took notice of the circumstance that the oxygen and hydrogen that combined to form water were substances in a very high state of tension, as shown by their resisting liquefaction, while the resulting compound, steam, was readily condensed. I treated this as a general principle in connexion with the evolution and absorption of heat; being, however, well aware of such

exceptions as the explosion of gunpowder and the detonation of fulminating substances—these, indeed, being exceptional up to this hour. I took occasion to remark upon Sir John Herschel's attempt to account for the mystery of solar heat, by adducing the case of friction as an instance of an inexhaustible supply,—in fact, deriving heat, in the long run, from nothing at all. The paper was received with strong expressions of disapproval and dissent from almost every one. Dr. Gregory alone thought it contained good suggestions. Indeed, some of the points most objected to had appeared already, and gained admission into chemical treatises: I found in Turner's *Chemistry* that the decomposition of compound bodies necessarily involved the restoration of the heat given out in the act of combining. Some of the members had treated this, in common with the other doctrines, as a wanton anticipation of what only experiment could establish. I may add that the Professor of Natural Philosophy in King's College, Dr. Fleming, was very severe upon the criticism applied to Sir John Herschel.

Everything urged in the paper has long become commonplace, although there was a failure in leading up to the doctrine of Conservation, very soon to be established. What was chiefly wanted was the hypothetical rendering of the latent heat.

of bodies in terms of force or motion, instead of some merely structural equivalent, such as the blacksmith's experiment of hammering a rod of iron red hot had suggested. We were still some way from setting up motion in molecule as the transformation of motion in mass, and as surrendering that motion by suitable arrangements.

Winter Session, 1842-43.

My winter's work, November, 1842, to April, 1843, may be said to have comprised (in addition to the conduct of Glennie's class) the final contribution of scientific examples to Mill, the writing of the paper for the Philosophical Society, and the preparation of the review of the *Logic* in its entire compass for the *Westminster*. I felt the necessity of improving my knowledge of French, and had to devote some time to that object; the first use made of it being to read Comte's book for myself. The March (1843) number of *Blackwood* contained a review of the work, from which I derived my first definite impressions.

The first letter I had from Mill this year (19th January) was to the effect that he had recomposed nearly the whole of the Sixth Book of the *Logic*, thinking it the weakest part of the

work, but now satisfied that it was put on a level with the others.

Comte's sixth volume, a very bulky one, had not been long out, and he had made a point of completing its perusal before giving the finishing touch to his treatment of the logic of politics.

At this time, indications were given of the resolution of the leaders of the Non-Intrusion party to leave the Church rather than submit to the State trammels that had now overtaken them. While speaking with admiration of their resolve, Mill significantly suggested that, in making the contemplated sacrifice, they should see that the interests of their followers were looked to, as well as their own.

The *Logic* was out in March. My review appeared in the beginning of May. In a letter, dated 2nd May, Mill described the success of the book in various quarters. It was largely read both in Oxford and in Cambridge, there being a mixture of motives; some reading with a view to being instructed, others for the purpose of controversy. A more remarkable feature was its reception by the Puseyite and Catholic parties, then at the height of their ascendancy. The chief outcome of this was the long article by Ward in *The British Critic*, which reviewed Mill throughout his whole series of avowed publi-

cations. The tone was friendly in the highest degree, and Mill could not help being pleased with the amount of appreciation bestowed. Even the Roman Catholics pure and simple were attracted by the book; but this was only a temporary phase, as I afterwards found when I had to examine pupils from their colleges for the University of London.

Many weeks in the beginning of the year must have been occupied with my review of Mill; the article extending to forty-four pages. It was essentially an abstract of the leading points in the treatise; the inductive portion, which exhibited the most novelty, being copiously set forth. The whole strain of the article was highly complimentary, but not more so than was warranted by the impression that the work made upon me, as the result of my first perusal. When sent to Hickson, he allowed Mill to see it. The consequence was that Mill recommended some of the concluding pages to be left out, as too complimentary in the circumstances. Seeing that he had only recently ceased to be the proprietor of the review, it was not judicious, he considered, to make it the medium of anything like unqualified laudation of himself. At the same time, he gave the article the benefit of verbal revision, by which it was otherwise improved. After all, it

was referred to by different critics as a eulogy rather than a review.

Summer Recess, 1843.

The College session was closed as usual in the beginning of April, and I made preparations, as before, to spend the summer months in London. The fight all over Scotland in connexion with the coming crisis of the meeting of the General Assembly, was becoming hotter every day. I was present at the debate in the Synod of Aberdeen, which ended in a division that practically sealed the fate of the popular party. I had, of course, as I have remarked, been in the habit of talking with Masson on his *Banner* articles. These went on all through the winter; and now he had to prepare himself for the final stroke. When I paid a visit to the Manse of Bourtie early in May, the letters Dr. Bisset received from day to day were occupied with the relative returns of Convocationists and Constitutionalists; and, seemingly, the expectation was that there would be a near approach to equality in the two sections, if they ever came to a vote.

In the latter end of May,—by which time the Disruption had been effected, and its consequences fully manifested,—I took the Aberdeen steamer

for London. This journey was rendered remarkable to me by the companionship of one of my class-fellows, with whom I had had comparatively little intimacy during the College course. He had not made himself very prominent in class work or distinctions, and, he being at the end of the alphabet, while I was at the beginning, we sat at the greatest distance from each other. His name was William Walker. He was a student of medicine, and a young man of considerable physical energy. Sometime previous to our present voyage I had attended a mesmeric demonstration conducted by him on the lines of mesmeric exposition as then practised. Insensibility to pain under the mesmeric sleep was one familiar item. Still more notable was the forming a chain of subjects by joining hand to hand, and pinching the hand of the person at one end, with the result of the pain being experienced by the person at the other end.

Our conversation on board the steamer took the turn of religious controversy. He was very full of the topic, and unfolded to me, for the first time, the nature of Strauss's handling of the historical parts of the four Gospels. I had never heard the name of Strauss mentioned before; but my curiosity was roused to ascertain more precisely the nature of his work, and I intended

forthwith, on going to London, to find some expository treatise on the subject. In the British Museum, I discovered a very indifferent English translation of a French version of Strauss's *Leben Jesu* (Miss Evans's translation had not then appeared). I saw plainly what was the drift of Strauss's attack, which, on the negative side, seemed very damaging. His mythical explanation of the origin of the impugned narratives was of far less consequence.

Arriving in London on the 30th of May, I obtained a lodging in Windmill Street, Tottenham Court Road. At Tavistock Hotel, I found Drs. Clark and Cruickshank, who were up as a deputation with reference to the Medical Bill. I went without delay to the India House to Mill and got the first volume of Comte, which I began forthwith. I spent an evening with Arnott, who gave me a slip that he had prepared for the University of London, with reference to the examinations for the B.A. degree, which were still in a very crude and objectionable form.

On my first visit to Carlyle, I found with him old Sterling, the well-known thunderer of *The Times* and the father of John Sterling. There was very little resemblance between the father and the son.

My old friend, Peter Gray, the Aberdeen

bookseller, was now settled in London as book-keeper in the firm of Peter Taylor, the crate manufacturers. He had taken up warmly some private mathematical researches, and obtained an introduction to De Morgan, who was the means of his being elected a member of the Astronomical Society. I accompanied him to one of the meetings of the Society, which was to me interesting and memorable. Sir John Herschel was in the chair, and the business included the intimation by Hind of some additions to the list of asteroids between Mars and Jupiter, which had then reached only a very small number compared with present enumeration. There was also an account of a new star of the sort that appear and disappear, its locality being the Milky Way. A very significant remark by the chairman clung to my memory. Speaking of the recorded appearances of these stars, which went back to the early Chinese annals, and were usually given as in the Milky Way, he remarked that this was a confirmation of the reality of the observations. For, as he said, our visible firmament of stars may be regarded as crowded into the Milky Way, outside of which the distribution is comparatively sparse; so that, by the doctrine of chances, whatever new event occurred would be naturally

located where the mass of stars was to be found.

The Disruption was completed before I left Aberdeen. Among other movements projected by the seceding party, was a grand demonstration in London, in the shape of a meeting in Exeter Hall in the end of June. I went to the meeting, with Robertson. The intention was to enlist the sympathies of English dissent; and speakers were found to hail the movement as a great contribution to the strength of non-conformity. Guthrie, if I remember, was the prominent representative of the Disruption leaders; Cunningham being also present, and Isaac Taylor of Ongar, well known for his series of writings starting with "Natural History of Enthusiasm" (all which had a temporary popularity; the style being vivacious, and the choice of subjects attractive). He was included among the speakers representing English dissent. Very ill adapted physically for giving an oration in Exeter Hall, he was still worse fitted for the present occasion by an utterly misplaced vindication of establishments, to which, by some perverse and paradoxical strain of argument, he considered the Scotch Disruption to have contributed. This was too much for the audience, and he was very soon hooted down. Mill, on his way up from the India House,

dropped into the hall in time to hear Guthrie, and expressed great admiration of his speech. As Robertson and I left the meeting, we encountered Binney, the well-known Congregationalist, a most commanding personage in every way. He treated us to a bottle of port wine in an adjoining hotel; but the drift of his conversation I have entirely forgotten. On the whole, the meeting must have been considered a success on the part of the Disruption leaders.

I mentioned that I had begun Comte immediately on my arrival in London. I worked at him all through, making a full abstract as I went along. In this way, I finished five volumes, and got the sixth to take with me to Aberdeen. I talked the work steadily over with Mill, discussing both its strong and its weak points. Comte's classification of the sciences was a wonderful advance upon anything known at the time; the three stages being very suggestive. The interpolation of the metaphysical stage between the theological and the positive, helped to express certain phases in all the sciences, although, doubtless, the vital contrast in the progress of knowledge was the theological and the scientific in its most perfect form. When the author came to sociology or history, in the fourth and fifth volumes, the application of the successive stages struck Mill as often wonderfully

happy. All this he expressed afterwards in his review of Comte's entire system, including his additional work on Sociology.

As G. H. Lewes had been reading Comte for the sake of his literary work, we used to discuss him at the Arnott weekly dinners. Arnott's other guests did not readily fall in with his system. Craik, who had had much historical writing to do, saw no virtues in him whatever. Arnott himself knew something of Comte, and, moreover, had classified the sciences upon the same general plan; while, at a future time (1860?), he sketched an exhaustive and detailed classification, very much on Comte's lines, for the science degrees of the University of London.

I had so far expressed concurrence and approbation with regard to the *Philosophie Positive*, that Mill, in writing to Comte, mentioned my name as one of his assiduous students. The correspondence between the two was still frequent and cordial. For some time, Mill entertained the project of visiting Comte in Paris before the end of the year; but the visit did not take place.

On the 17th of June, I went to a sitting of the House of Commons, which was occupied by an exciting subject—the so-called education clauses of the Factory Bill. The Nonconformist wrath over these clauses had reached the boiling-

point, and, in the gallery, some of their representatives could hardly contain themselves while Graham was speaking; his speech ending in the withdrawal of the clauses.

I had visits both from Masson and from George Walker in July; Masson being much engaged with Robertson in Church and political talk. This was his first visit to London.

While Cruickshank and Clark were still in London, we went together to Drury Lane, which was then under the management of Macready. The play was "Julius Cæsar," and was the first piece of consummate Shakespearian acting I had witnessed. Helen Faucit had then fully attained her position as an actress.

It must have been this year that the Italian Opera under Lumley had reached that extraordinary eminence which preceded its downfall. I went occasionally to the three-shilling gallery on Saturday evenings, when the entertainment, combining opera and ballet, lasted till midnight. The great Italian singers, Grisi, Mario, Lablache, were then in perfection; some of the solos of Mario exceeded in fascination of voice anything I have ever heard since, and enraptured the entire house, crowded at every point. The ballet represented by Taglioni, Elsler, and Cerito was also unique. I can well remember the effect of

the Queen's interposition to make up a *pas de quatre* of the four greatest dancers, including those three.

I got back to Aberdeen towards the end of August. I was still reading Comte on the various country excursions in the course of the two months before the opening of the session. I first paid a visit of a fortnight to Shier at Banff; and I can remember working in his house, chiefly upon psychological notes. In another visit of a few days to Donside, I remember mastering the final big volume, which completed Comte's work. A further excursion took me to Dundee, Perth, and Dunkeld. Leaving Dunkeld by coach for Blair Athole in the early morning, I made the foot excursion of thirty miles through Glen Tilt to Braemar, a most perilous adventure to have taken alone. This was in the beginning of October.

Winter Session, 1843-44.

On finally settling for the winter, I resumed my intercourse with our small society, and reported progress on my summer readings of Comte, and Mill's conversations thereupon. I proposed at once to give an account of Comte to the society. I found that Findlater was also in a state of pre-

paration for entering upon his work. He, as well as some of the others, had already got possession of Mill's *Logic*, and had pretty well mastered its contents. With a view to individual study, we obtained among us Comte's complete work. It was read by the entire knot composing the club; both Duguid Milne and George Walker having gone into it with the utmost thoroughness. Walker, like myself, prepared an abstract—which sometime afterwards he contributed to the paper started by Thornton Hunt and G. H. Lewes, called *The Leader*—forming a considerable series of articles. These Lewes made full use of, with Walker's permission, in his volume on Comte.

Such studies had, no doubt, the effect of marring the orthodoxy of all concerned, and had to be kept in a great measure secret, although it was impossible to avoid giving indications that in those days were calculated to bring the individual students into trouble. Nevertheless, the society allowed itself to be mentioned by Mill to Comte as one of the centres of Positivism. Duguid Milne had some correspondence with Comte himself, and was the recipient of his official circulars. To every one of us, at that stage, the philosophy of history possessed an engrossing interest, and was studied through all its autho-

rities known at the time. Comte, as a matter of course, gave his own peculiar turn to speculation in the department, with the advantage of his systematic handling, in which he stood alone.

One fruit of my reading of Comte was a paper to the Philosophical Society, in December, on the Classification of the Sciences. It was so far based upon Comte—taking up his hierarchy, but with the insertion of psychology as an integral department. It also adopted his very important distinction, original to himself, between abstract and concrete sciences. This, in fact, was the keynote of his system, setting it far above previous classifications, with the exception perhaps of Dr. Arnott's. After adducing the abstract sciences in their order, I prepared a table of the concrete or natural history sciences. I filled up what seemed a deficiency in a perfect scheme of classification—namely, to draw a distinction at the outset between the theoretical and the practical sciences,—giving a series of examples of these latter. It was substantially the plan that I published afterwards in the introduction to my *Logic*. The society was by no means captivated with the attempt. It remained for Blackie, however, to give full vent to antagonism and disapproval. His words were, “my whole soul revolts at this classification”;

sentiment being always the overruling power in his mental constitution.

In a letter from Mill in November, further allusions are made to Ward's article in *The British Critic*, and the view taken of his *Logic* by the Puseyite party. He announced that his next book would be *Ethology*—a subject which had taken a hold of him in connexion with the logic of politics. His correspondence with Comte was now very warm on the women question ; but here the diversity between the two was incurable.

In a letter of the 8th January, Mill speaks of Benecke's book on *Logic*, which had been recommended to him by John Austin and by Herschel. He thought well of Benecke, but considered his psychology defective from his not grasping the principle of association. It had good materials, nevertheless.

On January 18th, Mill criticized some MS. I had sent to him on the Sensations.

On 11th March, he wrote in answer to my account of the scheme of the Emotions, and was pleased at the amount of reference made to physiology. He referred to Comte as bringing out his course of astronomy, together with an introduction to the *Méthode Positive*, of which he promised me a copy.

The first event of special interest of the year

was Masson's leaving Aberdeen for London in the middle of January. Under the charge of Robertson, he was at once introduced to Mill and to Craik, to Dilke of *The Athenæum*, to Carlyle, to Hickson, and to Doyle, the editor of *The Morning Chronicle*. He was thus very much befriended at his first start, and soon found admission for his writings in various places. I had occasional letters from him describing his movements, but also greatly occupied with Robertson's candidature for Kilmarnock, which was uppermost in his own mind.

In the beginning of February, I renewed the proposal to give a course of lectures in summer to the London Mechanics' Institution. The subjects offered were, "Genius"; "Civilisation"; "The Accidents that Influence Character". The proposal was accepted, and Genius was the topic chosen.

The close of the session was marked by an incident that terminated my relations with Dr. Glennie. The rupture was precipitated by very injudicious advice on the part of my friend Dr. Cruickshank. It appeared that Robertson, the minister of Ellon, a *protégé* of Cruickshank's, had long had his eye upon Glennie's Chair, and had Dr. Cruickshank's pledge of support. The disruption gave Robertson the Church History Chair of Edinburgh, with a very lucrative addition as

Secretary to the Bible Board. Dr. Cruickshank, thus released from his pledge, was anxious that I should become Glennie's successor. In his zeal in my behalf, however, he made the very false move of suggesting to me to ask Glennie's consent to my making an application to be his assistant and successor. On my dropping the hint to Glennie, just as the session of 1843-44 was concluded, he became deeply offended; and we parted company for good.

Summer Recess, 1844.

In the third week of April, I left for London; going by coach to Edinburgh, from Edinburgh to Newcastle, and thence by train to London. Such were the possibilities under the then state of advancement of railway construction. In London, I obtained a lodging in the house of my unfortunate friend Christie, which proved convenient enough. The opening lecture that I gave to the London Mechanics' Institution was on 26th April, and the others in the two following weeks. My first visit was to Mill at the India House. He was then full of the excitement caused by the recall of Ellenborough by the Court of Directors.

I had an introduction from Mill to Dr. Forbes Royle, who was settled in London as a retired

India official, and I met at his house Dr. Hugh Falconer and Professor Edward Forbes, the naturalist. I went to a meeting of the Asiatic Society, at which Dr. Falconer, an Aberdeen graduate, exhibited his fossils found in the Sewallic Hills. These fossils were reckoned as a great contribution to the palæontology of India, as well as taking their place in the geological series.

This summer I became specially intimate with Chadwick, and heard about his sanitary schemes, which were now uppermost in his mind.

This was the time of the immense political excitement arising out of the opening of Mazzini's letters by Sir James Graham. Charles Buller's speech in the House was memorable for his witty saying: "The Right Hon. Baronet seemed to have a morbid love of unpopularity, which he took the most unjustifiable means of gratifying".

Being still somewhat out of health, I made an excursion in the end of June with some members of the Gow family to Boulogne. Notwithstanding the greater heat of the place, the change was refreshing. It made a beginning of my acquaintance with French life and character, although very much mixed with the English element. Among the curiosities of the place was a survival of the attempts at a perpetual motion in the shape of a boat that, once in motion, was expected to be

self-sustaining. About fifteen years previously, I had been familiar in the scientific magazines with what I supposed to be the vanishing phase of this delusion. A number of contrivers then gave plans of what they thought should be self-moving machines, and merely asked the readers, by way of a puzzle, to explain why they should not succeed.

During my stay at Boulogne, I understood that Campbell, the poet, was dying in a private lodging; his body being afterwards removed to London and buried in the Abbey.

I also found that a son of Burns and a brother of his wife had just left the boarding-house where I put up.

Returning to London in the third week of July, I continued to remain there. I had Masson to talk with. He was hard at work, and was making sundry attempts to get admission into periodicals. The *North British Review* had just been started under the editorship of Dr. Welsh, and Masson had been invited to contribute. I remember he prepared an article upon Dickens, which laid particular stress upon his sentimental and theological vein, as a species of Unitarianism. Strange to say, Welsh objected to the article as containing aspersions upon Dickens that might be actionable. At all events, the article could not be printed.

This summer, Mill took a long holiday to make

up for his two years' unintermitted residence in town. I saw him for a short period at the beginning of my stay, and longer before I left. Evidently he was dropping the scheme of a work on Ethology and drifting into the Political Economy project.

I had numerous letters from Clark, partly on his spelling reform, with which he was then engrossed, and partly on his water process. I received from Chadwick the first Blue Book of the "Health of Towns" Commission, where Clark's evidence appeared; but it seemed to have had no great effect upon the minds of the Commissioners. Chadwick, although not a member of the body, gave the cue to their inquiries and deliberations; and he was prepossessed with a scheme of water supply, by which Clark's process would be superseded as unnecessary. The real effect of the evidence was to engage the attention of a leading water engineer, Homersham, who endeavoured to introduce the softening process into London by starting a new company for the North of London: in this he was defeated by the political influence of the old companies.

In the matter of study, my devotion to psychology was at present exclusive. I was working up the *Senses* by the help of physiology,—in which I found Carpenter's *Human Physiology* very useful. I

had sketched the muscular sensibility as an independent sense, while entering as a component into the others, and had got together the materials for a classification of the Senses, which took shape in the following winter. I had also a series of historical readings in Thirlwall's *Greece*, Michelet, and Thierry. The introductory chapter to Michelet's *France*, in which he reviewed the provinces, and treated of their respective mental products as shown by their great men, impressed me very strongly, although, doubtless, a little strained for effect. I had for years been imbued with the wish to obtain the full pictorial reality of historical description, and attempted it in a variety of forms, now and afterwards.

I had no special call to leave London, owing to the uncertainty of my prospects. I did not actually take my departure till the third week of September, when I arrived in Aberdeen. I believe the manner of the journey was to Carlisle by rail, from Carlisle to Glasgow by coach, from Glasgow to Edinburgh by rail, and thence by steamer to Aberdeen.

Friends in Aberdeen had been occupied with the contingency of my being asked by Glennie to conduct the Moral Philosophy class. They seemed to think that he might not be able to find any one else, and speculation was afloat as to his

application to some one or other who could not be got. I never shared in any such hopes. The parting scene in April seemed to me to make it impossible for him to renew the appointment. A letter from Dr. Cruickshank, dated the 1st October, disclosed the situation and solved the mystery. At the time of writing the letter, the Senatus had held their usual meeting for the draft of the sessional advertisement; Dr. Glennie having expressed a wish that the name of his assistant should be left vacant. This led to some conversation. It now appeared that Dr. Pirie had given a pledge to Dr. Glennie to read his lectures in the meantime, until an assistant should be found. This, of course, struck everybody as unsatisfactory. In a private talk which Dr. Cruickshank had with Dr. Pirie, the latter disclosed the nature of the conversation that he had had with Dr. Glennie about me, and repeated the objections urged by Glennie against reappointing me. Dr. Cruickshank endeavoured to soften the aspersions; upon which Dr. Pirie suggested that I should still make the application, notwithstanding what had happened. Dr. Cruickshank replied that he would never think of giving me any such advice.

Nothing further was done for a few days. On the Principal's arrival in town, he summoned a special meeting of the Senatus, putting down as

the business, "Dr. Glennie's assistant". Matters now came to a point. Dr. Glennie had to obtain forthwith from Dr. Pirie an open avowal of his accepting the office of assistant for the session; and so the matter ended.

We now know that Dr. Pirie himself had an eye to the Chair, when it should become vacant. This was not suspected by any of his colleagues on the present occasion. Probably, he had been consulted by Dr. Glennie, with a view to his finding an assistant, and without supposing that he would do the work himself. Most likely, his own ulterior views made him think it not a bad move to occupy the chair in the capacity of assistant for one session. How he conducted the work, I never heard. He would evidently be under no obligation to adhere to the lectures whenever he had anything to put in their place. I had reason to know that he had been occupying his mind with psychological studies some time previously. What had been kept a dead secret was, that Robertson, on obtaining the Edinburgh chair, had entered into a compact with Pirie to support him as Glennie's successor. This secret was not in fact disclosed until the vacancy occurred. Dr. Cruickshank's supposition was that Dr. John Forbes would probably be a candidate; but he had no one else in his mind as a rival to myself.

Winter Session, 1844-45.

Having now no certain prospect for the winter, I paid a visit to Blake at Monymusk, where he resided as parish schoolmaster. I stayed there about a month, and was greatly invigorated by the air of the place. In the way of composition, I began an essay on Beauty, to offer to some magazine, such as *Blackwood*. Blake and I had a good deal of reading in company, of which I remember best Robinson's *Travels in the Holy Land*. From this book I derived the impression of the scenery of Palestine that I have retained ever since.

I returned to Aberdeen in the second week of November. Almost immediately after arriving, I was walking in George Street and met Dr. B. Williamson. As I was going northward, he told me to reverse my steps, because my services would immediately be wanted. On asking what he meant, I was told of the death of Dr. Knight after a very short illness. He had just opened his class when he caught a chill and took brain fever, to which he succumbed. I saw Dr. Cruickshank, of course; and he considered that I was the proper person to conduct the class, and said the Senatus would approve of the appointment. However, it fell to the family to make the arrangement

and provide the remuneration. The appointment, no doubt, was a bitter pill to the Glennie connexion; but they could not help themselves, and their lawyer, John Duguid Milne, arranged matters for them. I had the use of Dr. Knight's own lectures, which were very much to the purpose, and could be readily followed, as I had myself attended them six years before. Between them and my own notes of lecturing at the Mechanics' Institution, which of course were still more familiar, I contrived to get through the course and to manage the experiments tolerably well, although far from deftly. It was a much harder session than any of the Moral Philosophy ones. I was urged by Cruickshank and others to put in an application for the Chair, which added to the burden of the first two or three weeks. It was, however, conferred upon David Gray, head of the Inverness Academy.

As no special reason could be assigned for this appointment in the shape of credentials and influence on the part of Gray, my failure was considered due to representations to the effect that I was not a member of the Established Church. According to information received by Dr. Cruickshank, from what he considered a reliable source, had it not been for this circumstance, I should certainly have succeeded. Dr. Cruickshank's informant was, in all likelihood, his friend Robertson,

who, in his capacity of Secretary to the Bible Board, had ready access to the Lord Advocate ; but whether he was the medium of conveying the damaging fact I cannot tell. His profession to Cruickshank was that, for his own part, he had no wish that I should be kept out of a Natural Philosophy Chair ; although, as I found afterwards, it was quite different with the Moral Philosophy Chair. It was generally said that Dr. Glennie had been applied to by the Lord Advocate and had written in a very damaging fashion,—no doubt as the consequence of the irritation caused by what happened at the end of the previous session.

I had it on good authority that Ramsay of the *Aberdeen Journal*, seemingly from pure malignity, for he had no party to promote, sent to Sir James Graham a copy of the speech that I gave at the Reform Banquet in 1836.

Early in March, a vacancy occurred in the Logic Chair of St. Andrews, by the death of Dr. James Hunter. Professor Blackie made inquiries for me of Dr. John Reid, the professor of Anatomy, and learned what candidates were in the field. They were a very formidable array—Spalding and Ferrier of Edinburgh, Craik of London, and John Cook, minister of Laurencekirk. I entered the list simply with the handing in of testimonials, being unable to make a personal canvass. Masson

exerted himself in Edinburgh, both in the way of inquiries and in gaining recommendations from Edinburgh friends, including Chalmers, Candlish, Dunlop, and Hugh Miller, who were all at that time favourable to my pretensions. It was understood from the first that Spalding was the strongest candidate; and I never entertained any great hopes in the matter. The appointment took place on the 20th of April; Spalding being elected.

In the course of the session, I prepared an essay "On the Impediments to the Progress of Truth, which arise from the abuse of Language". This was a subject propounded for the Blackwell Prize several years before. The prize was biennial; but only one essay was given in at the prescribed time, and that had been considered unworthy of the prize. The subject was propounded again, with the addition of another year's income to the value, making £30. Several essays were given in at the second period fixed, but still failed to meet with the approval of the judges. It was repeated for the third time, the value being now £40; essays to be ready in March, 1845. As composed, my essay simply consisted of an accumulation of logical fallacies connected with the abuse of language, which had been growing during my logical studies of former years. The prize was adjudged in my favour on the 6th of May, 1846, and the essay

had to be read in the College Hall,—which was done by me when on a visit to Aberdeen in autumn. It was accepted as a paper in *Fraser's Magazine*, and published in February, 1847.

On the 9th December, 1844, I read a paper to the Philosophical Society, entitled “On the definition and classification of the Human Senses”. By this time, I had worked out both the muscular sense and the organic sensibilities a good way in the direction that they ultimately assumed. The reception by the Society was not especially favourable; the enumeration of organic sensibilities being considered a fair theme for witticisms of no very high order.

Summer Recess, 1845.

I was still in Aberdeen when I received a letter from Dr. Clark, dated the 18th of April (1845), intimating that there was a vacant post in the Andersonian University of Glasgow, and stating the nature of the work.

It was called a professorship of Mathematics and Natural Philosophy. The Mathematics was taught in the daytime, chiefly to students from Ireland, who were attending medical classes in the College. The Natural Philosophy was a popular evening class. There was, indeed, a

morning course intended for the Irish medical students and others, which met three days a week, but did not need such a profuse experimental display as the evening course. The appointment was not of much value in itself; but it carried along with it a number of evening engagements in a variety of popular institutions, on which the income was chiefly dependent. A day or two after receipt of Clark's letter, I went to Edinburgh to Masson, and thence to Glasgow to visit Clark. He took me round among the managers of the Andersonian, by way of a canvass for the appointment, which I was disposed to accept if successful. The chief and most influential manager of the institution was Walter Crum, of the calico printing works in Thornley Bank, near Glasgow. He supported me on Clark's recommendation. Another influential Glasgow man on the management was James M'Lellan, an accountant, an enthusiastic phrenologist, and a particular friend of the Combes. He was satisfied with my pretensions, from his inspection of my head. Crum took me to a meeting of the Glasgow Philosophical Society, held in the Andersonian, when Dr. Thomas Thomson the chemist gave an interesting historical paper, describing an interview that he had with Dalton soon after the promulgation of the atomic theory. Dalton, he said, was then

deficient in examples of the law of multiple proportions, and he himself contributed on the spot a new and valuable example. Being introduced to Thomson at the end of the sitting, I told him that I was a friend of John Mill, of whom I understood he knew something. In his gruff tones he said, with emphasis, "I knew his father better". He then gave me a ticket to the distribution of prizes at the College, which was to take place next day—the only ceremonial in Glasgow University that I ever attended. The chair was occupied by Professor Nichol as Vice-Rector, an office unknown elsewhere. The Principal gave the Latin prayer and the professors distributed their several prizes, with only a moderate amount of noisy demonstration, which Nichol endeavoured to restrain.

After completing the canvass in Glasgow, I returned to Edinburgh with the view of proceeding to London forthwith. I had not left when the news got abroad that Dr. Cook, professor of Moral Philosophy in St. Andrews, had suddenly dropped down dead. This was on the 13th of May. Thinking there might be better chances on this occasion, I resolved to be again a candidate, and proceeded without delay to make a personal canvass of the electoral body,—*viz.*, the Principal and Professors of St. Andrews. I

obtained several introductions in Edinburgh. Dunlop gave me letters to Brewster, Dr. Ferrie, and some one else. Spalding had not yet left Edinburgh, and I had an interesting talk with him ; this being my first opportunity of meeting him. He was both friendly and communicative ; giving me his views on philosophical matters, and especially on Rhetoric and Æsthetics. I travelled by coach from Burntisland to St. Andrews in the company of a U.P. minister, the Rev. James Taylor, who had recently been in London along with Brewster as a deputation in favour of the abolition of University tests. I arrived in time to hear the funeral sermon on Dr. Cook by Principal Haldane. I had gone a very little way in the canvass when I found that, at the previous election, the present vacancy was considered as not far distant, and the electors, accordingly, made up their minds in reference to it—that Ferrier was second in order of merit among the then candidates. It was useless, therefore, to prolong the stay, and I returned to Edinburgh at once. No one had a right to complain of either of the appointments : on the face of them, they were perfectly justifiable, and they stood the further test of actual occupation of the Chairs.

I arrived in London towards the end of May, and took lodgings in University Street, Gower

Street, with Dr. Christie, as before. The official appointment to the Andersonian reached me on the 24th of June; and Mr. Walter Crum came up to town to talk about the purchase of apparatus which had to be seen about—although not much was actually got. I have no record of any special compositions while in town that summer. The most notable incident was my introduction to Grote,—which took place at a meeting with him and John Mill in the London Library, followed by a long walk in Hyde Park. He was then on the eve of going to Kissingen waters with Mrs. Grote; but, before he left, I dined at his town house in Eccleston Street, and saw Mrs. Grote for the first time. He was then preparing for press the two first volumes of his *History of Greece*. I had my usual walks with Mill while I was in London; he being then engaged on his *Political Economy*.¹ I left London in the end of August, for Glasgow, and took up lodgings there in September, with occasional visits to Edinburgh. In September, Dr. Glennie's health failed so much that it was thought he could not long survive, and, in consequence, the preparations for attacking the Chair were actively

¹ Another incident of this summer was the visit to Cambridge, at the meeting of the British Association, in June. For particulars of this visit, which were of some importance, see *John Stuart Mill: A criticism with personal recollections*, pp. 80-81.

begun, chiefly in the way of securing access to the Lord Advocate. In point of fact, Glennie died on 9th of November, after the session was commenced. He had secured, on Dr. Robertson's recommendation, a young man from the South to act as his substitute.

Winter Session, 1845-46.

I brought with me to Glasgow an introduction from John Mill to Professor Nichol, who gave me very valuable assistance in connexion with engagements for popular lecturing. My most lucrative engagement was at the Mechanics' Institution, which generally adopted the Andersonian professor for its popular evening course of Natural Philosophy. Apart from the Science courses, I planned a series of lectures on physical and political geography, which, at Nichol's instigation, Charles Mackay, the editor of the *Courier*, printed in his paper with a strong recommendation written by Nichol himself. One of the Institutions, — namely, the Anderston Mechanics, — engaged me for this course. I believe I was asked to give it, although not with the same fulness, in some other institution; while several accepted short courses of Mechanics illustrated with some portable models that I could take along with me.

One such was delivered at Coatbridge, in the neighbourhood of Gartsherrie Iron Works, in which I was received for the night, after each lecture.

Among the incidents of the winter was an attempt by Professor Nichol to get me appointed substitute for the Professor of Natural Philosophy in the University, rendered vacant by the appointment to King's College, Aberdeen, of David Thomson. This would probably have been an impracticable office to be held along with other engagements. I was, however, saved from it by the jealousy of James Thomson, the mathematical professor, who was looking forward to having his son appointed as soon as the Chair became vacant, and was consequently in dread of rivalry, even of the most improbable candidates.

Dr. Pirie gave in his application for Glennie's Chair; and Lord James Hay of Seaton, who had married the heiress of that property, with whom Pirie had some distant relationship, applied to the County member, Captain Gordon, to support him at headquarters. Dr. Cruickshank took me up with all his might; and, as he was a strong Conservative in politics, his recommendation was pretty fairly on a level with Dr. Pirie's. The patronage lay, of course, with the Home Secretary, then Sir James Graham, coupled with the Lord Advocate, Duncan M'Neil. By a curious coincidence, M'Neil's brother,

Sir John M'Neil, had long been in the East India Company's service in the East, and was an intimate friend of James Mill and his son John Stuart Mill. John Mill availed himself of this connexion by writing on my behalf to Sir John M'Neil, who forwarded the recommendation to his brother, with whom I have reason to believe it had some weight. Being in Glasgow at the time, I went through to Edinburgh, carrying an introduction from Dr. Cruickshank to Dr. Robertson. On calling on him, however, I found what Dr. Cruickshank did not seem to be aware of,—namely, the compact between Robertson and Pirie. Robertson by his office in the Bible Board had occasion to meet the Lord Advocate in an official way, and was thus able to ply him with recommendation of Pirie. He could not, however, entirely shelve Dr. Cruickshank's support of my application, and promised to say something about me, which at all events would not injure my cause. He also gave a significant hint, or, rather stated pretty broadly, that, if I wished to aspire to a Moral Philosophy Chair in Scotland, I should become a licentiate of the Church, as there would be the greatest jealousy on the part of the Church of an appointment being given to any one not so qualified. With that I left him, knowing well what his line of action would be. As already stated, Dr. Glennie's death

took place on the 9th of November, and the contest for the Chair began in earnest.

I had next an interview with the Lord Advocate. He asked me particularly as to the manner of my conducting the Moral Philosophy class. I explained my difficulties, and how I overcame them. It might have been that he knew from some source or other of my deviating from Glennie's verbatim lectures, or he may have wished to know what independent resources I possessed in the Moral Philosophy department. He ended by telling me that a relative of his had forwarded a recommendation on my behalf, and that he was giving it all due consideration. There the matter ended for the time. There was an indefinite pause in making the appointment. It was said that Dr. Pirie's claims and mine were so balanced that to decide for either would give offence to the political adherents of the other. It was further reported that Graham inclined to Dr. Pirie, and the Lord Advocate to me. In point of fact, Pirie himself, some time before the decision, had declared that he had received from the Lord Advocate directly an assurance that he was to receive the appointment. During the state of suspense, Sir Robert Peel resigned upon the Corn Laws, as is well known. The Home Secretary seemed to have no desire to secure the patronage under the circumstances, and

left it undecided. Lord John Russell, being sent for, attempted to form a Government, but was thwarted by the obstinacy of Lord Grey, who would not work with Lord Palmerston. Had a Liberal Government been formed, I had almost the certainty of getting the appointment: Dr. Pirie said as much to Dr. Cruickshank. The Tories having regained office, the situation was the same as before; and no movement was made in the way of an appointment for some time longer. In this predicament, it occurred to a teacher in the Madras School of St. Andrews, William Martin,—who had some reputation in Mental Philosophy, and who had assisted Dr. Cook, professor of Moral Philosophy in St. Andrews, when his health gave way,—to make an application to the Lord Advocate for the Aberdeen Chair. On interviewing the Lord Advocate for that purpose, in Edinburgh, he was told to bring testimonials from Professors Spalding and Ferrier, which, accordingly, he obtained. Spalding, in giving his testimonial, inserted in it words to the effect that what he said for Martin was not to be in any way prejudicial to my claims, which he considered very strong. All this, however, did not matter; for it was the Government's way out of the difficulty to choose a third person with decent pretensions. Sir James Graham wrote a sort of

apologetic note to Dr. Pirie in his rather insulting way, saying that he could not think of degrading a professor of Divinity to an Arts Chair. To Dr. Pirie the disappointment was the greatest probably that he had ever had; but he bore it with characteristic equanimity.

It now became apparent that, if Robertson had in any way abetted with the Lord Advocate the charges forwarded against me at the Natural Philosophy vacancy, he made a great tactical blunder. Had I been allowed to obtain the Natural Philosophy Chair (which Dr. Cruickshank would have greatly preferred), Dr. Pirie's success in the Moral Philosophy contest was an absolute certainty. Dr. Pirie was not without the aptitudes requisite for teaching a Logic and Moral Philosophy class; and, as it was the department that he himself would have preferred to any other, he would doubtless have put forth his whole strength, and, in that case, compared favourably with the successive occupants of the Chair in either College.

Summer of 1846.

After experience of the session work, I found that the appointment to the Andersonian did not reward the trouble, and, accordingly, I resigned. I intended, however, to go on another

winter with the evening connexions, provided I could still retain them; in which case, I should have the early part of the day for other work. With this understanding, I left Glasgow in May for my usual summer visit to London. I had resolved, at any rate, to apply myself to authorship as the chief part of my work for the immediate future, and had some correspondence and talk with Mill as to the best topics, considering what my studies had been. In London, I wrote a review of Lewes's *History of Philosophy*, which, however, never appeared. It had been offered to one or two magazines, but was not accepted, and the MS. was lost.

Another article written during these months was a review of Whewell's book on *University Education* with reference to Cambridge. The article was sent by Mill to the *Edinburgh Review*; Napier complimented it in general terms, but said he had particular reasons for not raising a discussion in the pages of the *Review* that would drag in the Master of Trinity. I readily divined those reasons, knowing that Whewell had been already attacked with great virulence and personal animosity by Brewster, who had been long a regular contributor of scientific articles to the *Review*.

Another article was on "Wit and Humour," in

connexion with Leigh Hunt's book of extracts under that designation. I endeavoured to advance the analysis of these qualities by a step, but still left a great gap to be supplied. I tried to get the paper introduced into *Blackwood*, and obtained an introduction from Ferrier, but got for answer that the subject as connected with Leigh Hunt was not to the editor's taste.

The article on Whewell I offered to the *Westminster Review*; and it would have been accepted by Hickson but for another long education article that had just come into his hands. He proposed to me, however, to write for the January number (1847) an article on Carlyle's *Cromwell*, which I had to do against time in the beginning of winter. It was simply a critical abstract of the three huge volumes. At a later date, in July, 1848, the "University Education" article appeared in the *Westminster*. The article on "Wit and Humour" was also accepted by Hickson, after being greatly enlarged at his instigation by illustrative passages, so as to make it amusing and popular. Besides those that I collected for the purpose, Hickson added some of his own. The discussion of the foundations of the qualities was considerably overlaid by the operation of catering for piquant effects. Mill was by no means satisfied with the attempted analysis,

and truly remarked that something was still wanted to enable us to cope with the subtleties of the problem.

An Edinburgh publisher, named Lowe, had started a monthly to which I was invited to contribute, and I gave in an article entitled "Preservation of Health," which was published in April, 1846, and must, therefore, have been written during the winter in Glasgow.

In the course of the summer months, I paid two visits of five days each to Grote at his country residence in Burnham Beeches, near Slough. In ranging over his fine library, and in long walks and conversations with himself, I got great additional insight into a variety of subjects. While his days were mainly occupied with his narrative work, he was perpetually turning his mind to philosophical topics, and had the keenest relish for conversing with any one to whom these subjects had a special interest. I had not previously seen rural England to such advantage.

Returning to Glasgow in the end of July, I began inquiring whether I could recover my previous engagements, with the exception of the Andersonian. I found, however, that the Mechanics' Institution, which was the most lucrative, could not be had. The reason I understood to be that the members of the Institution,

who formed the audience, were dissatisfied with the small amount of experimental illustration that I was able to provide. I had made use of no apparatus except that belonging to the Institution, and, probably, from imperfect acquaintance with it, had not made the most of it. In fact, it was necessary for the lecturer, if he wanted to succeed, to have experimental resources of his own, or, at all events, to make an ample display in every department. This was what my predecessor had done, by which he made his occupation as a general lecturer tolerably remunerative. As I did not see my way to this kind of adventure, I threw up the Glasgow connexion entirely, and resolved to spend the winter in Rothesay, devoting myself to writing and study. I had the advantage of the company of Dr. Clark, who was living there on account of his health.

Winter in Rothesay, 1846-47.

I took lodgings in Rothesay for the month of August and part of September; which time may have been spent partly in writing articles, but more in exciting topics. In the middle of September, I left Rothesay for Edinburgh, making an excursion to Aberdeen to read the Blackwell essay.

Near the beginning of the session, the Natural Philosophy vacancy in Glasgow College actually occurred. The two principal candidates were William Thomson and Gray of Aberdeen. The only thing that could interest me was the success of Gray, with the consequent vacancy in Aberdeen. But, although Gray had a certain number of votes, the Thomson influence was too strong; Nichol himself, as a member of the Faculty, supporting Thomson.

On going to Rothesay for the winter stay, I took with me a small library, including the *Penny Cyclopædia*, Gibbon's *Decline and Fall*, Kitto's *Pictorial Bible*, Leigh Hunt's *Wit and Humour*, Clarke's *Travels*, some of Defoe's histories, Cowper's *Odyssey of Homer*. Other books I had to order or borrow in the course of the winter's work.

Several times in the winter I paid visits to Edinburgh, staying with Masson. On one of these, I made the engagement to deliver four lectures at the Philosophical Institution on the application of science to common life,—which were by no means a great success when the delivery came. The introductory one was printed, at Chadwick's instigation, in the following winter.]

Next to the Cromwell article for the *Westminster*, my most important contribution for the

press was the article "Travelling and Books of Travel," which appeared in June, 1847, in *Lowe's Magazine*, and was the result of an elaborate study of various works of travel, the chief being the productions of the celebrated Clarke. It was an attempt to methodize profitable observation in visiting foreign countries, and also to set forth the art of narrative and pictorial composition involved in the writing of travels. In short, it had to do with the narrative and descriptive departments of Rhetoric.

It was on visiting Edinburgh in the end of March or the beginning of April that I was introduced by Masson to David Page, literary manager and factotum for the Chamberses. He was then bringing out a set of scientific text-books, and asked Masson whom he would recommend to write the volume on Astronomy. Masson referred him to me, and I engaged on the spot to write volumes on Astronomy and Electricity; to which were added later Meteorology and the revision of a manuscript already prepared on Optics and Acoustics by a teacher named Bell, who died while it was yet unpublished. I had now sufficient occupation for several months to come, without making further contributions to reviews or magazines.

I returned to Rothesay to implement these

engagements, beginning with the Astronomy. In connexion with it, I found the great use of Clark's companionship, which I enjoyed during the whole of my stay in Rothesay, although he was an almost constant victim to his nervous complaint. On penning the first sentence of the treatise,—namely, the definition of the subject,—I struck at once upon a difficulty that did not seem to occur to any of the compilers of such treatises. It was considered enough to define the subject as the science of the heavenly bodies. Now, the point that staggered me was to include the earth in its planetary aspect, which could not be left out of the treatment. I referred the difficulty to Clark, and he suggested the way out of it that I actually adopted. "Astronomy is the science of the heavenly bodies, the earth being included as one of them, viewed not as we see it, but as it would appear to an observer from a distance." In many other ways, I found the assistance of Clark invaluable both in matter and in style; while I was able to give him occasional help, and to enter into such studies and occupations as he was able to keep up. In the course of the winter, he was gratified by the intimation that Government had ordered that his water test should be adopted in all examinations of waters in towns applying for Local Acts.

The lectures undertaken for the Edinburgh Philosophical Institution were now finished, and had to be delivered in June. By this time, Masson had left Edinburgh for London finally.

I had made an offer to Troup, the then editor of *Tait's Magazine*, to write a political article; but the acceptance was delayed for several weeks, during which I seem to have been occupied partly in psychological analysis, and partly in pushing forward rhetorical theories. The acceptance from Troup came at last, but not till I had Chambers's treatises in hand; and so it had to be declined. For my rhetorical theories, I made great use of the passages in Leigh Hunt's *Wit and Humour*. The use I made of Kitto's *Pictorial Bible* was to attain more and more of the concrete in history; the method being not dependent upon mere picturesque selection, but on an exhaustive and literal rendering of the actuality. As an experiment, this was of some value; but I consider it to have broken down under its own weight. The writers of fiction often aimed at literal and truthful representation of the scenes depicted by them, and I put this to the test upon Bulwer's *Last Days of Pompeii*. I endeavoured to realize the picture as given by him, and, years afterwards, was able to check my conception upon the actual Pompeii as now restored. I also made efforts to

realize the geographical descriptions of Karl Ritter, of Berlin, in the *Penny Cyclopædia*; these being the earliest good models of exact geographical description. A protracted and iterated study of his article on Spain gave me a very enduring hold of the great physical features of the Peninsula; but this was all the picture I could attain to.

Irish Colleges, 1846.—Towards the end of 1846, the Irish Colleges were getting ready to be opened, and the presidents and vice-presidents were first appointed, to be followed by the filling up of the Chairs by the Government (Lord Lieutenant), in consultation with the presidents. Inquiries were made for me by several friends (Thomas Graham and Lyon Playfair); the result being that I made no attempt to obtain an appointment. Kane, president of Cork, wrote to Playfair that native Irish would certainly be preferred. This, however, was not true of Belfast, where several were admitted from the outside,—notably Craik, Dickie of Aberdeen, and Blakey from Morpeth. Moreover, Nicol, the geologist, obtained the Chair of Natural History in Cork, through his friend Murchiston.

St. Andrews Chair.—In the end of 1846 occurred a vacancy in the Natural Philosophy Chair of St. Andrews. Having now had an additional winter in Natural Philosophy teaching, I was induced to become a candidate, and went to St. Andrews to canvass. On this occasion, I had the support of at least two of the professors—Spalding and John Reid. Nichol wrote to Brewster, and forwarded to him a copy of notes which had gained a prize at the end of my course in the Glasgow Mechanics' Institution—a well-meant move, but not likely to have any effect. Brewster was decidedly hostile and even

contemptuous. A freak of his displayed in the Logic election was repeated on this occasion. He was in the habit of telling candidates that every one of the electing professors was at the beck and call of some great man through whom their vote could be gained. To me he mentioned this fact in a general sort of way; to others of the candidates he named the parties in question. Two of the Chairs—Latin and Civil History—being in the patronage of noblemen, the Duke of Portland and the Marquis of Ailsa, these might be naturally suggested as the medium of influencing the holders of those Chairs. But for the rest who were not dependent on private patrons, he had some distinguished official or politician that was to serve the same purpose. A letter from Dr. Reid to Thomas Clark explained the prospects, to the following effect:—"The election is to take place in three weeks, and Sir David Brewster has threatened that unless he is satisfied with the person elected, he will insist upon a comparative and positive trial of the candidates. There are some old Acts upon the mode of electing professors, in which such modes of testing the merits of professors are mentioned, forming capital subjects for a law-suit. As one at least of the two candidates with whom Sir David has indicated he would be satisfied, stands well with a majority of the electors, I suspect that the electors to avoid all the inconveniences of comparative and positive examinations, especially when they have such a crotchety, litigious and troublesome person to deal with as our worthy Head, will yield to his wishes on this occasion, and give him one of the men he wants. I wish Mr. Bain had been the object of his choice."

It seems that the Senatus had resolved to offer the Chair to Adams of Cambridge, the celebrated discoverer of the planet Neptune,—who, however, declined.

Spalding wrote to Dr. Cruickshank a full account of the causes of failure.

It was on the occasion of this canvass that I made the acquaintance of Professor Ferrier. He was then in his prime, and hard at work on the execution of his philosophical scheme as it appeared in the *Institutes of Metaphysic*. Among other topics of conversation, he dwelt upon his attempts to understand the system of Hegel, but professed himself unable to comprehend the author's drift in speaking of "being and not-being as the same". The essential relativity of all knowledge, and the necessity of assigning to each proposition affirmed a counter proposition denied, made the very essence and framework of the *Institutes*; but there was evidently nothing corresponding to this in the Hegelian coupling of the opposites being and not-being, in spite of a certain semblance of agreement. Ferrier, himself a rhetorician of the first order, was greatly impressed by the fine rhetorical strokes that he encountered in Hegel. Some of these he repeated to me; one especially I remember to this effect:—Alluding to the displacement of philosophical systems by the constant arrival of fresh competitors, he gave the expression of St. Peter on the death of Ananias, "The feet of them that are to carry thee out also are already at the door". I never met Ferrier again until I went to St. Andrews in 1860, when he had as good as finished his career, his health being utterly wrecked and his end not far off.

On returning from St. Andrews to Rothesay, I spent a night with Nichol at his residence in the Observatory. This was notable from the circumstance that De Quincey came on a visit, which afforded me my only opportunity of meeting him. I had just seen him in Edinburgh walking out of doors; but this interview gave me some definite notion of how he appeared in conversation. It was a winter day, and he had been shown into the drawing-room, which was only pipe-heated. On Nichol fetching him into the snug parlour where we had breakfasted, his

first remark was that the fine drawing-room was a palace of ice. This he said in a deep hollow tone of voice, not devoid of music.

Summer of 1847.

As soon as my lectures were over, I went to London, and remained there until near the end of August; my principal occupation being the Chambers's treatises. I also read the two first volumes of Grote's *History*, published the previous year. I spent an interesting Sunday at Kew Observatory where Welsh was keeper, and got useful facts in connexion with Electricity, as well as Meteorology. The *Astronomy* must have been finished during my London stay. In it, I followed the plan given by Auguste Comte in his popular treatise, and made an acknowledgment to that effect in the preface; but, when Dr. Cruickshank saw the book, he told me that he had followed the same plan as regards the geometrical astronomy, and had borrowed it from Brinkley's *Astronomy*. On the recommendation of Graham, I took Becquerel as my authority for *Electricity*, and was engaged upon it when I left London in the last week of August. I spent a fortnight at Bowness in Westmoreland, working on the subject, and had for recreation the extremely interesting volume,

recently translated, of Goethe's correspondence with Schiller. My next destination was Edinburgh in the first week of September, where I took up my abode for nearly three months, occupied with the Chambers's treatises. During that stay, I entered upon a further engagement to write for the *Information for the People* the numbers Language, Logic, and the Human Mind.

The Chambers connexion led also to some elaborate reviews for the *Journal*. One, prepared at the same time as the Natural Philosophy treatises, was on a volume of the Ray Society, entitled *Oken's Physio-Philosophy*. This volume I examined very minutely as a specimen of the mysticism of an able thinker on physical biological science. It was distinguished by a few brilliant analogical discoveries, including the well-known homologies of the vertebrate skeleton. Long afterwards, at a meeting of the Aristotelian Society, I had to compare it favourably with Hegel's physical speculations, on which a paper was read by Mr. Alexander. My notice appeared in the *Journal*, on 5th February, 1848.

Early in December, I went to London and paid a visit of a few days to Clark at Rothesay, having no thought of anything in the way of occupation but the Chambers's engagements. My first task was to prepare another article for the *Journal* on

De Morgan's *Formal Logic*, to which I devoted a week's study. (Printed 11th March, 1848.) It was, of course, a very valuable contribution to my stock of logical knowledge.

Metropolitan Sanitary Commission, 1847-48.

Towards the end of December, 1847, I was asked by Mr. Edwin Chadwick to examine and digest a number of returns connected with the work of the Metropolitan Sanitary Commission, then recently appointed, and pushed on with Chadwick's peculiar energy. Already he had succeeded in inducing the Government to supersede the old Sewers Commissions of the Metropolis, seven in number, and to nominate a fresh body, which, by a fiction, took the whole into its own hands, Chadwick himself being the virtual leader. The returns that I had to deal with were furnished by the police, and had the character of sanitary evidence, which Chadwick wished to manipulate for his own purpose. I drew up a summary and report of the conclusions that he wanted. I began the operation in my lodgings, going down every afternoon to talk with him at the office of the Commission. Very soon, he asked me to take up my quarters at the office and do the

work there.¹ Later on, he obtained the sanction of the Treasury to engage me as assistant secretary to the Commission ; the chief secretary (who had been nominated in the Commission) being Henry Austin, a civil engineer, principally occupied as such, having been made the consulting engineer to the new Sewers Commission. There was very little as yet of proper secretary's work in the shape of carrying on correspondence. After disposing of my first job, I got for a piece of work, preparatory to the future operations of the Commission, the whole of the paving Acts of the Metropolis, which were to be abstracted on a uniform plan. This occupied a considerable time, but, in point of fact, ended in nothing. I had to assist at all the compositions of the Commission in the way of Reports on whatever turned up. The breaking out of a fever in the Westminster Public School was made an occasion by Chadwick for exposing the bad drainage of London. Evidence was taken, and a Report drawn up in the office ; while, at the Commission of Sewers, orders were issued for the re-drainage of the School. The business of the office was very miscellaneous and desultory, until

¹ Chadwick had the fancy that my introductory lecture to the Edinburgh Course would be a recommendation in procuring the official consent to my being appointed. Accordingly, I threw off a number of copies, and gave them as presents, and exposed some for sale with Griffin, the publisher. John Mill prepared a notice of the lecture in the *Examiner* newspaper.

the commencement of the session of Parliament, after which, preparations were made for introducing two separate Bills—one to constitute a General Board of Health for the country at large, called the Public Health Act, the Metropolis being excepted; and the other for organizing in a regular shape the Metropolitan Sewers Commission at present existing. A third Act was passed, having in view an epidemic visitation of cholera, and giving the Board of Health powers to make regulations on the subject.

Chadwick's ambition comprised not only the sewerage of London, but also the water supply, in connexion with which he had to encounter the enormous interest of the existing companies, while failing to ally with himself Thomas Clark, who had several years before propounded a mode of softening the London waters generally. In pushing his numerous projects, he fell foul of the great engineering profession, with which he was in a constant quarrel; and the work of the office consisted in fighting opponents as well as in advancing new schemes. The City of London was one of his great objects of hostile attack; and he was sanguine enough to suppose that he could deprive that body of some of its monopolies. When the Bills came into Parliament, there were new occasions for fighting. Local interests that

believed themselves menaced by the peculiar provisions of the Public Health Bill came up as deputations, or roused their members into active opposition in the House ; the more especial mark for attack being the despotic power of the central authority. In such various ways our summer was occupied, with perpetual alternations of success and defeat, until the close of the session saw the passing of the two Acts in their final shape. The Public Health Act gave power to the Crown to appoint a Board, consisting of three members, for carrying the Act into operation. One of these was *ex officio* the First Commissioner of Woods and Forests, then Lord Morpeth, who soon became Earl of Carlisle. A second was an unpaid member, for which office Lord Ashley was found available. The third was the paid member, Edwin Chadwick, on whom the work of the Board substantially devolved ; the others merely putting in an occasional appearance at the meetings required to sanction the proceedings. The additional Act for epidemic diseases, in view of the probable visitation of the cholera, authorized the appointment of another paid member, with especial reference to the object it had in view. This member was Dr. Southwood Smith, who took his place at the Board along with the others, and bore a part in the general business as well,

remaining in the office during the six years that the Board was allowed to continue. Following on the appointment of the members of the Board, by which it was empowered with full authority to administer the Public Health and Epidemic Diseases Acts, an official staff had to be constituted. This included, to begin with, a secretary and an assistant secretary,—the same two that served in the Metropolitan Commission. The secretary, Henry Austin, being an engineer by profession, was mainly occupied in giving advice on engineering topics. I, as assistant secretary, had to perform the proper secretarial work of conducting the correspondence, attending the meetings of the Board, and keeping the minutes.

The main administrative function under the Act was the establishment of Local Boards of Health in the English towns, upon an inquiry made as to their sanitary condition. This involved at once the appointment of seven engineering inspectors for conducting the investigations on the spot and preparing reports to the Board, in which the Act was put in force by one of two forms of legal document,—*viz.*, a Provisional Order and an Order in Council. I had to conduct all the correspondence connected with the work of these inspectors, and, ultimately, had to be the draughtsman of Orders in Council and Provisional Orders

for the final establishment of the several local boards. For this last office, I had made some studies of the authorities in legal expression, but, of course, attained a very imperfect mastery of the art, and hence committed several mistakes.

In supporting Chadwick's various schemes, we had frequent recourse to the newspapers, which it was his custom all through his career to inspire on the topics that he was pushing forward. I had to take a considerable part in this work, and to write leaders in such papers as we had access to, chiefly the *Globe* evening paper and the *Observer* weekly.

Chadwick was all this time the moving spirit in the temporary consolidated Commission of Sewers, where he was pushing his views and experiments on improved drainage arrangements. His schemes on this matter were pressed upon the inspectors engaged in the local inquiries, so that they became part of the office business as well. The new Sewers Act did not take effect till the 1st of January, 1849.

During these months, I was so far able to carry forward my private work in fulfilment of the engagements with the Chamberses. The first was the Science textbook on Meteorology, which must have occupied the first two months of the year. Next came the contributions to the *Information for the People*; and, of these, the first in order was "Language". For such a work I had exceedingly little previous preparation, and, indeed, the material

for it was mostly of very recent growth. Philology had taken a great start in Germany, more especially as regards universal grammar, the supposed origin of language, and the classification of languages. At the British Association of 1845, a group of important papers were read and discussed, and Max Müller, under the patronage of Bunsen, made his *début* with the English public. These papers and the translated work of German Philology, especially Bopp's *Comparative Grammar*, constituted the chief sources of the number. I made up for other deficiencies by a good deal of purely psychological speculation as to the invention of language, according to the known laws of the mind. At a later period, this number was replaced by a much superior exposition by Andrew Findlater, who had made himself master of the whole department, and, in addition, composed an elementary manual for schools.

“Psychology” and “Logic” had been first undertaken, and were composed in the course of the year and the first few weeks of 1849.

In Logic, I had, of course, the ordinary scholastic draft, as shaped in the various papers previously composed; and, for Induction, I rested exclusively upon Mill. My chief difference from Mill's treatment consisted in substituting for his Book vi. (the logic of the moral and political sciences), the logic of the Sciences generally, according to the scheme of Auguste Comte. This I retained in my final work on the Logic of Induction.

The paper on the Human Mind so far anticipated the final form given in the volumes on the *Senses* and the *Emotions* as to lay out the subject in nearly the same order, and to adopt the same definitions and laws of the chief constituents. A great deal had been thought and written leading up to this point in the course of the previous ten years; and, for the first time, the subject had been methodically set forth, while, in the course of

composition, many of the portions had been freshly elaborated and expounded. The organic sensations were fully although crudely handled, and the muscular sense put forward at the conclusion of the five senses. The tripartite division of Mind was not distinctly enunciated, but only the fourfold division of Sense, Intellect, Emotion, and Will.

The paper on Rhetoric was not suggested at the same time as the others, and was undertaken with reluctance, under great pressure, in May, 1849. I was barely able to finish it before the enormous strain came upon the office from the outbreak of cholera. It was, perhaps, more highly elaborated than any of the others; and was not directly derived from any one previous work on the subject. It was the outcome of a great many separate studies and efforts to deal with the economizing of language for all its various purposes. The effects of style had been previously looked at as exemplified in the greatest poets, orators, expounders, and stylists generally. More had been done by concentrated attention on select examples than by extensive superficial reading. The extracts given by Leigh Hunt in *Wit and Humour* were repeatedly conned for principles and generalities of style.

The plan of the handling agreed thus far with that adopted in my first text-book of Rhetoric, but the classification of the figures was less thorough, and there was no attempt to deal with the sentence and the paragraph as a distinct head. Of the various æsthetic qualities, the ludicrous had been the most studied, and the point of view adopted followed the article in the *Westminster*,—*viz.*, the exclusive reference to the degradation of something dignified. Description was for the first time made a distinct form of composition, having laws of its own. Exposition was carried out from the point of view of the logic of Science. The drama gave prominence to the element of the action and re-action of the personages conceived by the dramatist.

An item of my summer study of 1848 was the careful perusal of Mill's *Political Economy*, which I had opportunities of discussing in detail with himself in morning walks to the India House. Never again did I make a serious application to the subject, and merely picked up in a desultory way what became public in the course of political agitation.

The autumn months passed away without any proposal for a holiday. My health was becoming very indifferent; but I still went on working, in spite of loss of appetite and nervousness. A very bad cold brought matters to a crisis, and, in the beginning of November, I was obliged to leave for an effectual change. Thomas Clark, whom I had parted with in the previous December at Rothesay, had been induced to make trial of the water cure, recently introduced into this country by Dr. Wilson at Malvern, and puffed into notoriety by Bulwer Lytton, who had been much benefited by Wilson's treatment. An establishment was started at Dunoon, on the Clyde, to which Clark resorted, and where he found immediate benefit. As was his way, he took up the cure with extraordinary zeal, made experiments for himself on the various baths, and urged his experience upon other invalids. He wrote me long letters on the subject; and, as there was by this time an establishment opened

at Rothesay, I went there direct from London, and took the full benefit of the treatment for five weeks. It had a marvellous effect upon my reduced system, as often happened to patients on their first trial of it. I not only regained appetite, but became, for a time, a voracious feeder, and laid on flesh enormously. Equally remarkable was the sobering of the pace of nervous excitement,—a beneficial result that I may say became permanent. I saw Clark constantly while in Rothesay, and we made an excursion together to Moffat to superadd the benefits of a more bracing climate. After a week thus spent, I went to London. On arriving, I made a complete change in my whole plan of life. I got a lodging near the Marble Arch, the way from which to the office was through the three parks. Instead of a soup lunch and a late dinner at an eating-house, I dined in the office upon a meal brought in by a provider to the Government offices; the only other meal to follow being cocoa at my lodgings. I kept up scrupulously a morning bath at a public bathing establishment, and had a long walk on the way home to breakfast. A certain considerable amount of steady exercise became from this time forward a settled plan of my life, under every variety of circumstances.

One remarkable incident in this year that

involved our office was the Chartist rising on the 10th of April. The following extract from a letter depicts the scene so far as we were concerned :—

“ In our office and all the other offices of Government, the windows of the ground floors were fitted with iron bars running up and down, like a lunatic asylum ; there were, besides, barricades of deal boxes full of papers built up at each window to be a protection to the people within while firing out upon the mob through narrow openings between the sides of the boxes. Each man in the office mustered between eight and nine in the morning, and had a musket given him with twenty rounds of ball cartridge in a belt for going round the middle. I sat the whole day with my belt about me, snuffing up the smell of new leather. On the Friday after, all the officials of all the offices mustered in the Treasury Board room, and Lord John Russell gave us a speech of thanks for our readiness to take up arms on the occasion.”

General Board of Health, 1849-50.

I came back to the office at the New Year (1849) to find, among other things, that the consolidated Commission of Sewers had been named, the nomination lying with the Crown. Chadwick evidently had much to do with the selection, and

thought he had obtained a good representative Commission of all the talents. Indeed, the selection was a little remarkable, if not unique, and the result showed that it was not wisely conceived. The chief source of the troubles that soon overtook the body was the inclusion of some of the members of the old Westminster Commission, who had assisted Chadwick in upsetting the previous bodies. The same parties had been admitted into the temporary Commission, and had worked hitherto without much friction. To these were added Walter of *The Times*,—the most disastrous of all the appointments. A number of scientific men were put on to be useful in their several walks: Airy, the Astronomer - Royal; Buckland, the geologist; Dr. Arnott (who never once made an appearance), and Sir James Clark. There were, of course, a number of lawyers. Engineering was represented by Sir John Burgoyne, and by no other professional. I myself was included in the body,—no doubt to be a vote that Chadwick could rely upon in his favour.

The working of this Commission makes a chapter in the sanitary history of London, and is minutely given in a contribution that I made to Chadwick's family of my recollections of his career. The Commission met weekly at ten o'clock, and committees on other days, in the

office, Greek Street, Soho, from which the Board of Health officials proceeded to the office in Whitehall ; continuing at work till half-past five.

The occupation thus involved became a serious addition to the proper work of the office,—*viz.*, the administration of the Public Health Act, augmented by the operations under the Contagious Diseases Act, in consequence of the outbreak and spread of cholera, from the beginning of March to the middle of September. In March, the disease made its appearance in London, as well as in twenty-seven English towns, gradually increasing in virulence and in mortality till September, when it reached the enormous number of 400 deaths a day in London alone. The consequent occupation consisted in preparing notifications and orders, in sending out inspectors, and in corresponding with the localities. The correspondence arriving at our very slenderly appointed office had reached seventy communications a day ; some requiring lengthened answers, which it fell to me to prepare from directions given at the daily meeting of the Board. In the meantime, the Commission of Sewers was rapidly approaching its termination from internal dissensions connected with the main drainage of London ; and the Government saw fit to put an end to its existence by a supersedeas

addressed by Lord Carlisle to each member, on the 8th October.

In the beginning of October, I went for a holiday to Ben Rhyddyng Hydropathic establishment, — a much more imposing place than the humble Rothesay house where I had stayed in the end of last year. The treatment was somewhat different ; but, in the main, the manner of life was much the same—long walks in a fine country of hill and valley. One afternoon, I was able to go as far as Bolton Abbey, a distance of seven miles, and did not seem over-fatigued.

I came back to London in a much better condition as to flesh ; the undue increase of weight of Rothesay being now taken down.

I found Chadwick, as usual, pressing on his new projects, and setting everybody to work as much as possible. The nature of my occupation as assistant secretary was now tolerably apparent. There was to be a great deal of consultation from local boards with regard to their mode of proceeding on questions of law and business, as well as sanitary works. A legal education would have been the most fitting prelude to such an office ; but this I had not got, and saw no good in attempting to acquire it. I had contrived in stolen snatches of time to do what writing I had been able to execute in my own subjects ; but to keep up

this extra work would be a severe strain, and might cause dissatisfaction on the part of my superiors,—for, like John Mill, I did a good deal of it in office hours, there being nothing to prevent my doing so, as the official work could not be neglected, and yet did not fill up the time. It was about the end of November that I sounded Page on the engagements of a paying kind that I could count upon, if I gave up the Board of Health entirely. He readily embraced my offer to embark again in the schemes of the Chamberses, pointed out a number of enterprises they had in view, and gave a sort of guarantee that I should never want for paying employment. His more immediate proposal was to take a part in the composition of a new weekly serial, entitled *Papers for the People*. After I had once hinted to him that I contemplated quitting the Board of Health, he kept urging me to carry out the determination, and come to Edinburgh. The result was, that I gave in my resignation to the Board early in the year, and got away on the 10th of March, 1850, proceeding to Edinburgh forthwith.

CHAPTER IV.

COMPLETION OF PROJECTED SCHEME OF THE MIND:
LONDON UNIVERSITY—1850-1860.

Summer of 1850.

THE retirement from the Board of Health in March was, under the circumstances, necessarily followed by a sojourn in Edinburgh. I had, of course, to be in constant communication with the Messrs. Chambers and their literary manager, Page, as well as to keep in touch with Edinburgh friends generally. When the summer heat became oppressive, I resorted for a number of weeks to the Rothesay Hydropathic, where the bracing *régime* was favourable to composition, and enabled me especially to execute to satisfaction the most difficult of all the Papers I had in hand,—*viz.*, “The Topic of Philosophy”.

As I had not been in Aberdeen for four years, I took the opportunity now provided of paying a visit to the place and to my old friends. George Walker and John Duguid Milne had become brothers-in-law, and lived in the same establishment. I was

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invited to stay with them, and remained for some weeks—being still occupied with the Chambers's Papers,—leaving Aberdeen for the South towards the end of October.

Of the *Papers for the People*, contemplated by Page, I had myself, before the end of 1849, proposed and written one, entitled "Education of the Citizen". It appeared in January, 1850. It dealt with a favourite topic of mine, comprising what for years I had been revolving, and had often discussed with George Walker and John Duguid Milne,—*viz.*, the analysis and classification of social elements, and the turning of this to account in the political education of the ordinary citizen. It was, perhaps, the most popular of my whole set.

The next in order of composition was entitled "Water Supply of Towns". It, too, was composed in the end of 1849, by help of materials partly obtained at the Board of Health, and still more from Clark. It was printed in December, 1850 (No. 49 of the series).

The third in order of composition, "Recent Discoveries in Astronomy," was derived in great part from the new and enlarged edition of Sir John Herschel's *Treatise on Astronomy*, originally published in *Lardner's Cyclopædia*. It dwelt more particularly upon the most recent views on comets, meteors, and sidereal astronomy generally.

The subject of "Every Day Life of the Greeks" had been mentioned as a topic, and I was engaged upon it, soon after coming to Edinburgh, in summer. Four volumes of Grote's *Greece* had been published by this time; but these gave only an incidental assistance. I made much use of Becker's *Charikles* and the current *Classical Dictionary* (Lemprière). I submitted the MS. to Grote, who made many corrections and emendations; and it was

published in July, 1850 (No. 29). There was no attempt at generalization, except in the introductory dissertation upon the mental characteristics of the Greeks. Grote himself had frequently said in conversation that he meant to devote a special chapter in his history to an exhaustive view of Greek life in a methodical array. This, however, he never executed, but had so many casual references to the subject in the course of his narrative as to supply all the information ascertainable on this head.

Next followed “ The Religion of the Greeks,”—which was much more highly speculative, and contained a discussion of the nature and sources of Grecian deification according to the views then prevalent, more being made of the powers of nature, and less of the worship of ancestry than in some of the views at present received. Grote’s early volumes (I. and II.) were freely drawn upon ; it being his way, however, not to commit himself to the actual evolution of the several divinities, but to describe them exactly as they were given by the Greek authorities themselves.

The paper “ What is Philosophy ? ” is an elaborate review of all the meanings and aspects of philosophy within reach at the time, and is not materially different from the logical and scientific views held by me in later years. A conversation I had with Robert Chambers on the scope of this paper, before he had seen it in print, rather alarmed him as to its severe exclusion of something that he considered necessary for mankind to keep in view,—*viz.*, a benevolent purpose in the universe, to which he still adhered, although he had rejected the Bible as an authority, on account of its supposed misinterpretation of geological facts in the account of creation. The effect of this hesitation was to delay the appearance of the paper, and to require a good deal of explanation and apology in order to appease his reluctance.

My remaining paper, “ Animal Instincts,” was the

latest to be written. It was sent in at the close of the year, but, in consequence of the facts just stated, had priority in publication to the one preceding. It consisted mainly of an assertion of the substantial identity of the human and animal organisations, bodily and mental, with variations of mode and degree. That the animals, while possessing a certain amount of inborn aptitude, just as man does, have at the same time a certain extent of power derived from education and experience, is the position taken, as against the swamping of the entire animal mind under a common name—"Instinct". The detailed treatment consists in a survey of human psychology, and its application to explain the animal powers, so far as the two coincide. The weak point of the paper is the attempt to force under some mode of experience the more obscure and remarkable processes of animal life, such as parturition and maternity—a mode of explanation which I now regard as incompetent and insufficient. The existence in animals of our ordinary intellectual faculties, such as memory, was fully vindicated; and Professor Owen approved of the remark that every animal that had a home must be considered as possessing memory.

During the summer, I had two important treatises put into my hands to notice for *Chambers's Journal*—Sydney Smith's *Lectures on Moral Philosophy* and Reichenbach's *Researches on Animal Magnetism*. Sydney Smith's Lectures came upon the world as a surprise: few persons were aware that he had composed such a course. They were delivered at the Royal Institution, London, in 1804-6; he being then a young man (born 1771). He evidently put very little value

upon them himself; but they showed that he had at one time expended both reading and study upon Mental Science. I found, on a careful perusal, various interesting points, and noted them in the article (15th June, 1850).

The other article referred to the volume of Reichenbach's remarkable researches, translated by Professor Gregory (of Aberdeen, afterwards of Edinburgh). It consisted almost necessarily of an abstract of the curious experiments in animal magnetism conducted by the author, together with the inferences drawn from them and the recondite forces supposed to be at work. The whole department thus indicated took possession, for a time, of the public mind; but, being found incapable of assimilation with existing knowledge, like so many other hyper-natural positions, it ceased to retain its interest.

Before disposing finally of the events of 1850, I may advert to the circumstance that this year included the last of my longer stays in Edinburgh, which had gone on for successive summers, five or six years. The circle of my acquaintances during those years comprised a well-known group whose names will recur in many historical or biographical connexions. It included George Combe, his nephew Robert Cox, Robert Chambers, John Hill Burton, Alexander Russel (of *The Scotsman*),

Mrs. Crowe, Dr. John Brown, his cousin Samuel Brown (surnamed the Alchemist), Patrick Macdougall, Mr. and Mrs. Stirling, the Italian refugee Ruffini, Dr. Rutherford Russell (homœopathist), his brother Frank Russell, Professor Tait, and, of course, David Masson, who, however, had gone to London for good in 1847. I had had a two years' break in my Edinburgh visits in 1848 and 1849. In subsequent years, these visits were still frequent but short; being generally a few days at a time, either in a hotel or with Findlater, after he had settled in Edinburgh in his own house.

Winter in Bushey Heath, 1850-51.

In November of this year, I settled for the winter in a lodging at Bushy Heath, near London, on the North Road, four miles from Watford and ten miles from Marble Arch. The situation was rural and healthy; but I knew nobody, and had to spend every fourth or fifth day in an excursion by coach to friends in London. I carried with me a final engagement from the Chamberses to edit a small volume containing the Moral Philosophy of Paley, detached from his voluminous political chapters. This occupied a good many weeks of the winter; and I had, of course, many conversations

both with Mill and with Grote upon the topics discussed.

The new portions contributed to the work referred (1) to the Moral Sense, (2) to the nature of Happiness, and (3) to Moral Obligation.

The discussion on the Moral Sense (occupying nine pages of close print) consisted in showing the difficulties of treating this as purely instinctive, and in enumerating nine constituent elements serving to account for our moral judgments, without reference to a special instinct. There was a considerable amount of redundancy in the enumeration, and, at best, it could only be called an approximate settlement of the question. It had been the result of many overhauls of the subject in previous essays, and was superseded by the final analysis in the *Mental and Moral Science*.

Paley was unusually pretentious in expounding what he considered the constituents of Happiness, as being vital to his treatment of morals. In such a vast subject, it was not easy to comprise an adequate rendering in the short chapter devoted to it. Accordingly, an attempt was made to improve upon it. The chief condition assigned was given in the unexceptionable formula "to afford a well-proportioned and duly-alternated gratification to the various active and passive susceptibilities of the human frame". If to this we add the negative expression—an exemption from all the varieties of pain in the proportion of their respective amounts and severity,—the definition is sufficient as an abstract formula.

Moral Obligation—disposed of by Paley under his pithy interrogatory, "Why am I obliged to keep my word?"—is subjected to a fresh examination. All the points usually involved in the topic are gone over, much in the same fashion as in the later treatment in the *Moral Science*; stress being laid upon self-preservation and

social security as the leading ends of a properly ethical kind, while universal happiness or utility is regarded as too large for ethical enforcement.

Two or three visits to Grote at Burnham Beeches diversified the winter, and gave opportunities for discussing what I was at work upon. Grote strongly protested against the proposal to regard Integrity as a fundamental assumption of Ethics; which led me to modify the position I had assigned to it. On my stating this to Mill, he remarked that the necessities of the advocacy of the ballot operated on Grote's mind upon this point. At the same time, he himself held that Truth must occasionally bend to Utility.

Summer in Paris, 1851.

I left Bushey Heath in the beginning of April, 1851, with the intention of proceeding to Paris. A few days spent in London were turned to account in attending Professor Sharpey's lectures in University College, that part of the course referring to the brain and nervous system. His exposition contained the most advanced views held at the time. In particular, he gave a *résumé* of the nature of the nerve force, introducing some speculations of Faraday on its character, as illus-

trated by his electrical researches. I did not preserve the exact tenor of the speculation; but it operated upon my mind in the way of suggesting the doctrine of Spontaneity as a necessary supplement to the recognized circle of the nervous current from sense to movement. I had not embodied this addition in any previous sketch of either Sense or Instinct, but introduced it somehow into the draft that was in my hands at the time.

In planning a residence in Paris of two or three months, it was my intention to go on with the composition of a full detail of the psychological scheme already redacted on a smaller scale in more than one draft. I should, of course, at the same time, be able to see Paris and Paris life, and improve my knowledge of the language.

I arrived in the first week of April, and, after a few days at the Hotel de Lisle, found my way to a boarding-house or *Hôtel garni*, in the Rue de la Victoire. The house had a large number of bedrooms and a common table for six o'clock dinner. The keeper was an elderly woman, who had for manager a young medical graduate. He presided at the table, and had a remarkably clear articulation, which enabled me to follow his French

with comparative ease. I engaged a private teacher for an hour-a-day's lesson, and kept it up during my stay.

I brought with me an introduction to Madame Mohl, well known to a large English circle for her hospitality and conversation. Her husband, Julius Mohl, Professor of Persian in the Collège de France, contributed his part to make their domicile an attraction to English visitors, as well as to their wide circle in Paris. They occupied an unpretentious *troisième* in the Rue de Bac, which had been the abode of Madame Mohl's mother. I presented my introduction at once; and it was responded to in the most cordial fashion both by Madame Mohl and by her husband. I received an invitation to their weekly evening receptions, which were a mixture of amusement to the young, in the shape of music and dances in one apartment, and, in another apartment, of conversation with people of all ages and of all ranks. Their circle of acquaintance comprised, of course, the literary and scientific class, which made up the institute of which Mohl was a member, and also a considerable sprinkling of the more purely fashionable members of Paris society. The titles of the old *régime* still persisted in their families, but did not carry with them the dignity that attaches to the titles of our nobility. While frequenting those

evening receptions, I had also the privilege of making morning calls upon Professor Mohl himself in his own study. He was essentially an orientalist; his standing being shown by the fact that he was president of the Oriental Society of Paris. He interested me greatly by opening up two new veins of information on the countries of the East. His earliest project had been to devote his life to a history of Chinese civilization, but found that his memory broke down under the weight of the language. Still, he had gone far enough to possess a great number of curious and interesting details respecting the early history of China. These he freely communicated in conversation; and they still remain in my mind. His actual position as a teacher in Paris was to give lectures in modern Persian to a very small number of pupils. The nature of these expositions he also explained to me; and they were remarkably suggestive. He was, further, known as a man of the most liberal political views—which he retained through the vicissitudes of French politics that soon overtook the country.

Madame Mohl had usually with her one of her husband's two nieces, the daughters of Robert von Mohl of Heidelberg, whom I saw several years later at his own abode. These were remarkably intelligent and vigorous young women;

and, in 1885, I was received at Berlin by one of them—who had become the wife of Professor Helmholtz.

It so happened that a younger sister of Mill was then resident in Paris; having married an Italian banker and stockbroker. Calling at their house, I found an elder sister, Clara, who gave me the news of the pending marriage of John to Mrs. Taylor, which he had just communicated to his family, and which took place soon after. With Clara, I went to a reception at the Institute, to which Mohl gave us a pass. It consisted of the ceremony of admitting a new member, M. Nisard, a well-known literary man, and an acquaintance of John Mill. He had to appear in the peculiar uniform of members of the Institute, and had to deliver a eulogy or criticism of his deceased predecessor, M. de Falaise. There was said to be a good deal of gossip interest about the peculiar career of the departed member, which I, of course, could not follow. The next part of the ceremony was a reply or response by the president of the sitting, M. Saint Marc de Girardin, which consisted, as I could gather, very much of a review of Nisard himself.

Shortly after I was settled in the Rue de la Victoire, I was joined by Findlater, who was on a tour with his pupil, Patrick Simpson of Cobairdy,

and meant to spend some weeks in Paris. Rooms were readily found for them in my capacious domicile; and we, of course, had many outings together. Most interesting of these were our meetings with Auguste Comte and Littré. I had myself been invited by Alexander Williamson, afterwards Professor at University College, to a reception at the house of his father, a retired official of the India House, who was, for the time, resident in Paris. He had taken the advice of John Mill to give his son the opportunity of obtaining, from Comte, private lessons in mathematics; and at this reception Comte was present, along with a few young men of Williamson's acquaintance. Comte himself, a short paunchy figure, with a round cropped head and hard features, talked freely when addressed, but otherwise sank into an abstracted mood, as if occupied with his own thoughts. He did not stay out the evening; but I had some conversation with the youthful guests, who avowed themselves his disciples, although with certain qualifications that I did not precisely comprehend.

It was after Findlater's arrival that we sought an appointment with Comte at his own house; which he readily granted. His domicile was modest enough, being only a half-floor of some three or four rooms altogether, and looked after

by a single female servant. He received us in a bright-coloured dressing-gown,—which only meant that, in regard to dress, he was a Frenchman. We sat with him, perhaps, for an hour, while he poured out a monologue on the political prospects of the world, as viewed from the standpoint of his own philosophy. His utterance was vehement and rapid to a degree that I could scarcely follow. He had the same command of magniloquent diction which appears in his writing. One of his phrases, in describing the growing institution of newspaper correspondence, stuck to my memory. The employees in this department he styled “*Les ambassadeurs de la Presse*”. The general tenor of his discourse, however, was to treat of the advancement of his own scheme of political reconstruction, of which he had, as we know from his writings, a most extravagant anticipation.

Excepting the millenarians, who, presumably, reproduce the position of the first apostles, I never met such an extreme case of immediate anticipation of organic change, except in Robert Owen. Owen came over from America once a year; went the round of his friends, and communicated to them his expectations of an immediate reorganization of society in the United States. I heard him myself in one of these conversations, while calling upon Dr. Arnott, and regarded his peculiarities

as indicating an extraordinary aberration from the common judgment and ways of life. I may say again, with regard to Comte, that I never knew or could imagine such a case of the negation of humour. His whole attitude was that of severe denunciation or self-aggrandisement, and his only smile was a grin. Of such men as Aristotle, Milton, Bishop Butler, and Wordsworth, it may be safely said that they wanted the sense of humour; but, in sheer negation, probably, they never approached to Auguste Comte.

With Findlater, I paid a visit to Littré at his country cottage in St. Germain, spending the afternoon in walking through the forest of St. Germain, the great firwood plantation, and dining with him in the evening. His conversation was interesting on a great many subjects; but we did not say very much about Comte, although Littré was his chief expounder. He gave us to understand his very deep-seated radicalism, and seemed to look back with regret on the suppression of the republican revolt by Cavaignac in 1848. Another house of reception that I visited was a set of large apartments in the Place de la Madeleine, laid open by an American lady, Mrs. Chapman. Her receptions were attended by French, English, and Americans, and were large and brilliant assemblies. The most interesting person that I had the oppor-

tunity of talking with was an elderly deputy, a man of remarkably strong good sense, who would have been called so, even if he had been an Englishman. He spoke of the political situation freely, and indulged in regrets at the influence of Lamartine in the constituent assembly. But for a highly-wrought sentimental speech of his, enlarging upon the strong good sense of the people, the election of president might have been given to the Assembly,—which would have altered the whole face of things, and, in fact, the entire history of Europe. Cavaignac would have been appointed, and we can easily anticipate that what followed might have been very different. However, an outsider might have remarked that the blunder should be divided equally between the tempter and the tempted.

I was present at a sitting of the popular Assembly, but saw nobody to interest me particularly, except Cavaignac. The proceedings of the summer, however, were of the highest moment. Louis Napoleon's Ministers introduced a measure for allowing the revision of the Constitution with a view to his being re-elected president. This required a majority of two-thirds. It was referred by the Assembly to the Committees of Sections, and their recommendation was embodied in a report drawn up by De Tocqueville, who was saluted by the Press as the man pre-eminently

suiting to the occasion. No doubt, he was. Although his liberality of purpose could not be questioned, he had come to the conclusion that it would be impossible to uproot Napoleon from the soil of France, and that the only solution was to allow him to be peaceably elected. It was well known, however, that, when the report was put to the Assembly, there was a majority in its favour, but not two-thirds ; and, consequently, the revision broke down.

The advancing summer made Paris very hot and sultry ; and, in order to avoid the relaxing effect, I paid a visit to one of the gymnastic establishments, and saw their scheme of gymnastics, which was very violent, with little discrimination. However, it had a useful effect in putting me on the track of the most approved gymnastic exercises, which I could keep up afterwards.

On Sharpey's recommendation, I got in Paris Longet's *Physiology*, as a help for the *Senses*, and for the physiology part of psychology generally ; and upon it I worked, so far as *The Senses and the Intellect* was concerned : in fact, the first edition of the *Senses* took its cue very much from this study. I kept at the composition of the Psychology draft with steady regularity ; being engaged, no doubt, upon the *Senses* chiefly.

Among the usual excursions from Paris, Versailles was necessarily included ; but the endless relays of grounds were more overpowering than otherwise, and what I remembered best for after reference was the theatre as it actually stood in the reign of the Bourbons, with all the appurtenances of a theatre. Its subsequent conversion to the National Assembly that succeeded the fall of Napoleon was the most interesting part of it.

Autumn and Winter, 1851-52.

It was somewhere in June that I returned to London, and found every place crowded for the great Exhibition. As matter of course, I spent two or three days in going over it, but went very speedily to my old lodgings in Bushy Heath—the locality where Thomas Clark was staying with his wife and child, in daily expectation of a report from the Chemical Commission appointed by the Home Secretary on the London Water Question. It was soon in his hands ; a copy being brought by myself from Graham. In London, I went on with my writing, and, before the end of July, left for Scotland. I paid a visit to my class-fellow, Blake, at the Manse of Stobo ; he having been recently appointed minister of the parish. Continuing my draft at his house, I can well remember having

been struck with the first hint of Natural History classification of mental states,—the mode of handling that I thenceforth adopted and retained all through the treatment, both of the *Senses* and of the *Emotions*.

According to my best recollection, the chief work at Stobo was drafting chapters on the *Emotions*, which ultimately went into the second volume. From Blake's, I went to Aberdeen, where I stayed for some time. In Aberdeen, I first had access to Sir Charles Bell's *Anatomy of Expression*, and made a thorough study of the work, adopting it into my plan. In the end of September, I returned to London; having previously made an engagement to give lectures in the college for ladies in Bedford Square. I undertook two courses. One was to be on a physical subject. For this, I adapted my old course in Glasgow upon physical and political geography, which I extended very considerably as I had a much greater number of lectures to deliver. For the physical part, I enlarged the topics by the help of *Anstey's Physical Geography*. The political portion was the fruit of long and iterated study in connexion with politics, political geography, and history. I was also expected to give a course of moral philosophy—that is to say, psychology; but the course was not attempted that year. I was now settled in London

for nine months in the year, and took up my abode as a boarder in the house of Alexander Craig, an artist, who had married a sister of Dr. Clark. Here I remained until May, 1855.

In October of this year, there was a vacancy in the Chair of Philosophy in Queen's College, Belfast. I had not become a candidate for any of the Philosophy Chairs, when the Queen's Colleges were first opened, under Sir Robert Peel's Act for their establishment. I had no wish to become a candidate for the Belfast vacancy on this occasion ; but my friend Graham urged me to apply, and thought he could be of service through his influence with the vice-president of the College, Dr. Andrews, a well-known chemist. I made my application accordingly, and might have looked for some result from John Mill's letter in my behalf to the Lord Lieutenant, Lord Clarendon, with whom he had been intimate in former days. Lord Clarendon's reply was obviously evasive ; the plain fact being, as we might have very well known from the outset, and as, indeed, I myself believed all along, that the Lord Lieutenant would be guided entirely by the president, Dr. Henry, who would represent the local sentiment of the Presbyterian body in Belfast. My old friend Craik was now a professor in the College ; and I naturally wrote to him for advice. His first reply was to the effect that I should go in : But, on further inquiry and consultation with his colleagues, he formed a very different opinion. One of those colleagues was Dr. Dickie, an Aberdonian, whose opinion was very decisive, and whose reasons Craik communicated in the following sentence : " I was met, however, in one instance at once, in another after an interval during which some inquiry had been made, by an intimation of the most decided kind that your appointment was clearly out of the question, seeing

that you had already failed in obtaining a similar appointment at Aberdeen, notwithstanding your admitted high qualifications in other respects, solely on the ground of your being obnoxious to the Church party”.

The anticipated French catastrophe came off in December of this year, not very long after the rejection of the revision. I read of it in *The Times* the same day, and went down at once to Mill at the India House to hear his impressions. His first words were, “The fellow has succeeded”: and that was really the substance of his conversation. He gave up hopes of France from that day forward; having in the previous summer expressed himself in these terms:—“I am for the first time downhearted about French affairs. The party in possession of power is evidently determined to go all lengths, and I fear both events are favourable to them. If they succeed in provoking an *émeute*, they will put it down and then execute all their designs at once; if there is no *émeute*, they will go from one step to another till they have effected all they want.”

Grote I saw soon after. His wife happened to have been in Paris on the night of the *coup d'état*. Writing to Grote the night following, she gave a picturesque description of Paris, with the watch-fires of the soldiers distributed by the usurper, so as to suppress any hostile rising. Grote's own

expression, however, was gloomy in the extreme; and he could by no means enter into the picturesque view which his wife presented to him. She, however, brought home from one of the deputies a report of the final proceedings of the Chamber of Deputies on the morning of the *coup d'état*, and during the short interval they were allowed, before being expelled by military force. This report Grote put in type for private circulation and preservation, as a document in the history of the country.¹

The Christmas holiday of three weeks I spent on a visit to the newly-founded hydropathic establish-

¹ Four years later, when Napoleon was received in London as Emperor, with apparent cordiality by the general public as well as by the Court, the impression made upon Grote was such as to give birth to an emphatic expression of repugnance. The following is an extract from his letter to me, dated 19th April, 1855: "I am glad he (Mill) is not here to witness the scenes of this week—the public adoration paid by the English people to the greatest political criminal who has been seen in Europe since the despots of Greece and mediæval Italy. I am sure he would have felt as I do—a sense of disgust and humiliation perfectly heart-sickening. To me it has been a cup more bitter than anything which I have been called upon to swallow since the news arrived of this man's *coup d'état* in Dec., 1851. I am consoled for having turned sixty years of age last November, when I see the accursed state of public opinion in which my old age is destined to move. Very luckily, my interest in science remains unchanged and unabated; as for the hope of ethical or political amelioration, the sooner I can root that out, the more comfortable I shall feel." In point of fact, however, Grote saw the ruin of Napoleonism at Sedan, and died shortly after the *émeute* that led to the destruction of the Tuileries and the Hôtel de Ville.

Mill, having taken up his abode, in 1859, in a cottage at Avignon, where his wife was buried, used to contemplate, when in Parliament, the possibility of saying something in the House of Commons that would give offence to Napoleon, and probably lead to his being driven out of France.

ment in Moore Park, Farnham. A London chemist, named Smethurst, had recently acquired the fine old house and grounds associated with the name of Sir William Temple and Swift—the latter residing there for a time as Temple's private secretary. A large and merry Christmas party filled the house. The mistress of a London boarding school came with her husband, her two daughters and a young daughter of Kossuth, who had been put under her charge. I made one subsequent visit to the establishment while still under Smethurst; but his stingy management disgusted his visitors, while he was entirely incompetent as a proper medical adviser. However, he saw fit to give over the establishment to Edward Lane of Edinburgh, under whom it prospered for a number of years. I paid many visits to it as a patient under Lane, and was always kindly and hospitably received.

It was at the end of 1851 that I resolved upon the final draft of the *Psychology*, which was put in two parts as ultimately arranged. I had now in hand a very expanded sketch to draw upon, and, therefore, could proceed at a tolerably rapid pace. All the days that I had no lecturing, from the beginning of 1852 onwards, I devoted to composition.

In the course of the year, I had numerous opportunities of discussing points with both Mill and Grote. The writing of the book, however,

must have been carried on partly from the previous drafts, and partly from new references—the Anatomy portion being principally taken from Quain's *Anatomy*. By the end of 1852, I must have made considerable progress with the first half of the volume, but had to draft and re-draft the portions relating to the mechanism of the Will, which had hardly reached its final shape for the first edition of the *Senses*.

The recess of the year, 1852, from July to September, was spent in Scotland, and was only partly devoted to actual composition; a good deal of the time having been occupied in reading the works of reference, especially Hamilton's *Reid*, which I went over again and again.

Winter Session, 1852-53.

In the winter session of 1852-53, I resumed the geography course at Bedford College, and also, for the first time, conducted a class in psychology, making use of my MS., so far as it went. The College staff was joined this session by Findlater, who was now disengaged and took up his abode in London; undertaking to teach an English class, the lectures for which he prepared carefully from the latest authorities on grammar and composition.

His presence was a great advantage to me in many ways. His co-operation was, however, confined to the single session of 1852-53.

In March, 1853, Masson got the appointment to University College. The meeting of Council was on a Saturday afternoon, and I took the news to him on Sunday morning.

In the April vacation, Findlater and I arranged a visit to Malvern, which turned out both interesting and healthful. Rutherford Russell, whom I had visited in Edinburgh, was already in residence as substitute for another physician, and lived at the Rectory of the place. There were also in the lodgings we occupied, Captain and Mrs. Jesse—the sister of Tennyson who had been engaged to Hallam,—with another sister named Mathilda, and a brother, Horatio Tennyson. Both these last we used to see afterwards at Mrs. Orme's. We had a good deal of interesting conversation with the whole party, and also attended a reception given by the Rector, with whom Russell was staying. Towards the end of summer, Findlater got an engagement from Robert Chambers to go to Edinburgh and superintend a cyclopædia projected by the Chamberses on the basis of a German lexicon that they had purchased. He, accordingly, took up his residence in Edinburgh the same autumn, and there permanently settled.

Summer Vacation, 1853.

This recess contained some notable incidents, besides the work of composition, which was remitted only for relaxation and rest.

My first move was to pay a visit to Professor Clark's brother, William, who had charge of a calico-printing work in Derbyshire, in a village named Hayfield. Clark, although by profession a calico printer, was an artist and a devotee to art, and had surrounded himself with paintings and engravings which made his residence interesting, and also gave the turn to his conversation. I spent the first three weeks of July with him, and found the country agreeable and bracing. I can remember one day of excessive strain in composition; the stage reached being the Sensations of the Alimentary Canal.

Returning from Hayfield to Manchester, I experienced a railway accident of sufficient magnitude to have sacrificed several lives, but for the circumstance that the two carriages smashed were, by an exception to the rule, luggage vans. There were no passengers until the third from the engine, and this was knocked through by a buffer and a man hurt; but there was no further damage.

In Manchester, I spent a long afternoon with Braid, since well known as a "rational mesmerist"

—such he styled himself. He took me round among his patients, and showed me his experiments upon them. He made more of mesmerism in the cure of disease than any other person I had then heard of, and gave me his own theory of the entire series of manifestations.

Proceeding from Manchester, I joined Findlater at Carlisle, and, along with him, spent a fortnight at Rothesay. My next destination was Aberdeen. There, I encountered my old friend, James Straton, “our local phrenologist” — a remarkable man in many ways. He had been occupied in preparing statistics of the brain weight of different classes, ages, occupations, grades of society, etc. What, however, was most interesting was his mode of head measurement. It had long been urged against the phrenologists that, estimating the compartments of the brain, they could not allow for thickness of skull, and, more especially, for the frontal sinus, whose position was such that any irregularity in its thickness threw doubts upon the size of the observing organs. Straton had been at work to grapple with this difficulty. He explained to me verbally what he had been doing to surmount it. He had been allowed to make *post-mortem* examinations, I think in Manchester Infirmary, with a view to determine the relation between the thickness of the skull and the bony

skeleton generally, so as to see if there was a sufficient constancy of proportion between the parts to enable the observer to determine the thickness of the skull in the living subject, by measuring other parts that were accessible to measurement. The method was, undoubtedly, a sound one; and the existence of some such constancy was more than probable. He himself had based upon his numerous dissections a scheme of measurement that he was now applying on the great scale, and by which he had already obtained the statistics referred to. Unfortunately, he did not explain his mode of procedure; although this, I suppose, he would have done, had his life been spared. He stated to me, in round numbers, that he had to take forty measurements of each subject—that is to say, the measurements of the head to begin with, and, next, those other measurements that enabled him to assign the thickness of the cranium; the result of the whole being that his estimates were finally given in terms of brain size, even in the living subject. For aught I know, his method died with him. The anthropometry now practised professes only to measure head dimensions—taking for granted that these are, for all practical purposes, a sufficient criterion of size of brain.¹

¹ In 1845, Straton had brought out a pamphlet entitled "Contributions to the Mathematics of Phrenology," in which



Alexander Bain in 1855.
FROM A PAINTING BY J. CRAIG.

Winter Session, 1853-54.

By the end of this year (1853) the *Intellect* was nearly finished; there remaining only the concluding chapters on Similarity, and the two subsequent Books. These last became the occupation of the greater part of 1854.

The Easter vacation of this year coincided with the preparations for the war. I took my holiday in an excursion to Portsmouth and the Isle of Wight. The operation of transporting troops from Portsmouth was going on. I saw the 42nd parading before their departure; everybody's remark being that no regiment could be in finer condition. I spent a few days in the hotel at Bonne Church, and had walks to Ventnor by the Cliff Road. I saw the dockyard at Portsmouth, and went on board the *Victory*, which was always at anchor. I returned by Chichester to London.

In the summer months, Clark was a good deal in London, in connexion with college affairs; and I had occasion to meet him frequently at the

he gave different modes of measuring the head, and exemplified the process in great detail from busts and skulls, as well as from living heads—thus preparing extensive statistics from which he drew various inferences. There was still wanting his last refinement of taking into account the thickness of the skull, as stated in the text.

Tavistock Hotel. Mentioning to him the near completion of my volume, I asked his advice as to a title; the understanding being that this volume should be published by itself, the other to follow. After a little explanation as to the nature of the contents, he suggested the present title, and also the one to be given to the second volume, in harmony with the first. The suggestion turned out a success, and gave the work an individuality and prominence which no other title could have done. I also had Clark's assistance in revising the phraseology of the introductory chapters, and of some of the others.

I had the further advantage of Dr. Sharpey's assistance in revising the chapter on the Nervous System, as well as the physiological parts of the Senses and the Instincts. I had still to finish Compound and Constructive Association, during the summer term.

At the close of that term, I resigned the connexion with Bedford College, going in the recess to Scotland.

Autumn and Winter, 1854-55.

The summer vacation included a tour in the Lake Country, during which I spent three days with Harriet Martineau at her cottage in Winder-

mere. She was then in a very critical moment of business, brought about by John Chapman's bankruptcy. Her brother (with whom her relations were anything but amicable), William Rathbone Greig, and Dr. Hodgson—all of them creditors to Chapman—were bent upon getting the *Westminster Review* into their hands, to be an organ for their peculiar views on religion as well as general politics. Miss Martineau, on the other hand, backed up Chapman in retaining the management of the *Review*. For this end, she sent a message to her solicitor in London, to pay off in full the claims of all the three, so as to deprive them of any voice in the matter. Before I left, however, I found that things had been arranged in Chapman's favour. Miss Martineau's fixed idea was that the aim of the party, her brother in particular, was to crush her and Comte, with whom she was now identified by her published abstract of the *Cours de Philosophie Positive*. James Payn, the well-known novelist, was then residing in Windermere, and beginning his literary career by contributing to *Chambers*—through Miss Martineau's introduction. His own reminiscences of this period of his life are full of Miss Martineau, but very inexact in circumstances that I myself was privy to.

The rest of my holiday was spent in Scotland—

partly in Edinburgh, and partly with Blake at Stobo. On returning to London in September, I took steps for getting the *Psychology* volume published. Mill gave me an introduction to his publisher Parker, who, in the beginning of December, expressed his willingness to publish the volume on the usual publishing conditions of half profits. The printing went on in the first months of 1855; and the book was ready for publication in the month of June.

Autumn and Winter, 1855-56.

My marriage took place in May, 1855; and after spending three months in Ross, Ilfracombe, and Redhill, we took lodgings for the winter in London; and there I proceeded with the studies requisite for commencing the final draft of the second volume. The difficulties of the commencement turned out to be considerable, notwithstanding all that had been already done. It was sometime, therefore, before I could incur the hazard of putting pen to paper, knowing that what was done must, for the present, be final. The nature of Will, in particular, had gone through many transformations, and must now take a final shape. The classification and delineation of the Emotions had necessarily been very arduous. I

still resolved to carry out the Natural History method as far as possible, describing the emotions in detail.

Summer on the Rhine, 1856.

In the beginning of May, we set out for a tour on the Rhine, accompanied by Miss Helen Orme, who happened to be a proficient in German to the point of ready conversation. Going by steamer to Ostend, we made our way to Bonn, staying there a month. We were hospitably received by Professor Brandis, and saw also Professor Welcher, and the librarian of the University, Shaarschmidt, who has since become a philosophy professor. Visiting the library one afternoon, I saw Strauss sitting on a bench in the act of studying a book. He was merely on a visit, his home being at Heidelberg. Leaving Bonn, we ascended the Rhine to Mannheim, and thence crossed by rail to Heidelberg, where I received the greatest attention from Robert von Mohl, Professor of Politzei in the University. I had many interesting talks with him, as he spoke English fluently. He took me to see Baron Bunsen, then in retirement in a villa on the Neckar, a little above the town. Bunsen I found extremely unreserved in his conversation about his own diplomatic career in London, as well

as his studies on primeval history. He gave it as his opinion that the time necessary for the growth of our various existing languages demanded 20,000 years as the duration of the human race. Going next to Frankfort, we put up at the hotel at which, it appears, according to Professor Wallace, Schopenhauer regularly dined at the early *table d'hôte* dinner. Proceeding from Frankfort to Wiesbaden, we were deterred from remaining owing to the badness of the water, and took up our abode at Biebrich, by the palace of the Duke of Nassau. Here we began our descent of the Rhine, on the return home. We landed first at Coblenz, and stayed a few days, making a day's excursion to Ems, and visiting Ehrenbreitstein. From Coblenz, we went to Cologne, and, thence, took the steamer at one stretch to Rotterdam, which required us to spend a night on board. From Rotterdam, we made the voyage by steam to London, in twenty-two hours. This was in the end of July.

First Winter in Richmond, 1856-57.

Our next business was to find a permanent home in London or the neighbourhood, as most suitable to my occupation and prospects at the time. We found a cottage in Richmond, under

the wall of Richmond Park, and took possession in August ; remaining there for four years, till the appointment to Aberdeen.

In Germany, I had made a commencement of the composition of the *Emotions* in the final form. After my settling in Richmond, this went on steadily, until it attained its completion in the autumn of 1858.

The former draft was the basis of operations, but every part was reconsidered and modified ; probably half of the ideas being originated in the act of composition. The final draft of the Will was the result of many previous draftings, in a succession of years. It necessarily happened that the modifications at each stage of the work led to further modifications in what was to follow, so that the deviations from the previous text went on increasing. Under the *Emotions*, the *Æsthetic Emotions* and the *Moral Sense* were elaborated anew. For the first time, the origin of moral rules in the deliberate institution of society was explicitly set forth—a position that, however disliked, has never, so far as I know, been refuted. Indeed, the very attempt could soon be shown to involve self-contradiction. The various theories of the origin and groundwork of our moral judgments, had, of course, to be examined ; while the largest share of attention was necessarily bestowed upon the doctrine of a moral sense. All this made the chapter an ethical, as much as a psychological, investigation ; while it has been my aim in subsequent editions, both of the *Senses* and of the *Emotions*, to adhere exclusively to psychological treatment, whether as regards *Ethics* or as regards *Metaphysics*. In the latest edition of the *Senses*, this aim has been realized as far as practicable, but not as yet completely in the

revisions of the *Emotions*. Under the Will, there was a repetition of the Ethical topics, Prudence, Duty, Moral Inability, and Liberty. The greatest difficulty in arrangement was to find a place for Belief,—which seemed related to the active part of our nature, but could not readily be located under Will proper. It, accordingly, was made a chapter apart; and the volume concluded with a *résumé* of comprehensive psychological issues, under the heading Consciousness. The sections on the nature of Cognition (27-34) would now be described as Epistemology, to which the previous sections lead up; while the concluding note re-discusses Subject and Object, or the Perception of the External World.

Among the incidents of the four years' stay in Richmond, was my appointment to the Examinership of the University of London. The record of this is as follows:—

In 1857, a vacancy took place in one of the two philosophy examinerships. T. B. Bircham, who, with the Rev. Henry Alford, had been an examiner from the beginning of the University, gave in his resignation. On hearing of the vacancy, I became a candidate, and went through an active canvass among the members of the Senate. With several, I was personally acquainted; and I had influential introductions to others. Graham and Sharpey gave me important assistance. There were no fewer than seventeen candidates. In my canvass, however, I found that some members of the Senate took notice of the circumstance that Alford, the other examiner, had just been appointed Dean of Canterbury, which seemed to make his application for the post somewhat out of place. The most influential man on the Senate was Henry Warburton—to whom, along

with some others, I presented a copy of *The Senses and the Intellect*. The interview I had with him was cordial and friendly; but, of course, he did not commit himself in any way. The election took place on the 1st of April; twenty members being present. My name was proposed by Warburton himself, with complimentary reference to the volume, which he professed to have read in the interval between my visit and the meeting. A vote by means of the ballot being taken, my name stood at the top, supported by seventeen members. This determined my election. Thomas Spencer Baynes, who was also a candidate, obtained eight votes. Alford had only three, which showed the view that the members generally took of his application under the circumstances. Accordingly, a vote for the other examiner was taken,—which placed Baynes at the top with thirteen votes, and, of course, secured his election also.

The retiring examiners had still a duty to perform in the examination for the M.A. degree, in the month of June. Bircham took his part as formerly; but Alford, being a little chagrined at his rejection, desired to be relieved of this remaining duty, and I was asked to take his place. The first examination falling properly to the new examiners was the B.A. in October. Baynes and I held a consultation as to the very unsatisfactory prescription of subjects for the several degrees, and, more especially, for the B.A., and addressed a letter to the Senate on the subject, dated 21st November, 1857; giving at the same time our recommendation as to the substitute. The matter was referred by the Senate to a committee; and it ended in the adoption, substantially, of our scheme, which has remained ever since, with modifications adapted to the B.Sc. and other new degrees. The difficulty to contend with was the seeming necessity of prescribing definite books, as had been done previously, and as was the general usage in other Universities.

It took a good deal of argument and discussion to satisfy the Committee of Senate that, for the circumstances of the University of London, subjects, not books, were the only tenable prescription. No doubt, the actual enumeration of topics directly pointed to Mill for the Logic, and to my *Senses*, in the first instance, and, subsequently, to the *Emotions*, for the Psychology. Of course, both Mill and myself had the benefit for many years of the wording thus adopted. At the same time, candidates took note of the fact that Baynes had closely identified himself with the philosophy of Sir W. Hamilton, and that his questions in Psychology bore traces of that connexion.

By the new charter obtained by the graduates with a view to their incorporation, the tenure of office of examiners was limited to five years; and, accordingly, we two ceased to act in 1863.

The revised scheme of Logic and Moral Philosophy for the B.A. degree had scarcely come into operation when it encountered a severe onslaught from the Roman Catholic Colleges, which had been accustomed to send up candidates for the degree. At the meeting of Senate on 20th October, 1858, a long communication was read signed by E. J. Purbrick, Prefect of Studies, Stonyhurst, and representing the views of the other Catholic Colleges, remonstrating strongly against the changes made in the B.A. degree, both in the Logic and Moral Philosophy prescriptions, and in other important respects. Insinuations of the materialistic tendency of the new prescription and of the views of the present examiners were freely indulged in; while the method of conducting the philosophy education in the Roman Catholic Colleges was fully explained, and shown to be incompatible with the preparation of students for meeting the new requirements. The communication was referred to a special meeting of the Committee on the System of Matriculation and

Degrees in Arts on 26th November, 1858, at which were present the Vice-Chancellor (Sir John Lefevre), Mr. Grote, Sir Edward Ryan, Dr. Arnott, Mr. Heywood and Mr. Kiernan. Three representatives from the Catholic Colleges attended, and urged the objections felt by the Colleges against the alteration. The two examiners were also present. The Committee listened patiently to the Catholic deputies, and threw upon me the whole brunt of the reply. Of course, I knew that I could make no impression upon their minds; but I did the best I could to vindicate the position that the Senate had taken up. The result of the meeting was that Mr. Grote was deputed to prepare a written answer to the case of the Colleges,—which was brought up and agreed to at a meeting of Committee, held on 9th December, and subsequently adopted at a meeting of the Senate on 15th December. The Colleges had to acquiesce in the decision, and took their own way of minimizing the obnoxious consequences of the new prescription. As regards the B.A. pass, they got the students thoroughly up in Formal Logic, so that they could always gain the highest marks in it; they gave them an outline of Mill's *Inductive Methods*, on which they could also score a modicum of marks; while, as regards Psychology, they gave a very mild and slender epitome sufficient to enable a few marks to be gained, and thus the pass was secured. No attempt was made by Catholic students to gain honours in the Philosophy Department: for honours, the Classical Department was chosen.

Being repeatedly troubled with indigestion, I paid occasional visits, during the Richmond stay, to Dr. Lane's hydropathic establishment at Moorpark, Farnham, and received there the greatest benefit, as well as kindness and attention. In the

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beginning of 1857, I was the means of recommending Charles Darwin to visit the establishment, and happened to spend a fortnight there in his company. As we generally walked together after the baths, I had opportunities of hearing of the progress of his researches, and the approaching publication of the *Origin of Species*. He found so much benefit from the treatment under Dr. Lane that he frequently returned for a fortnight's stay at a time ; but I never met him again.

Autumn and Winter, 1858-59.

Another appointment of importance that I received was Examiner in Moral Science for the Indian Civil Service. This took place first in 1858, and was renewed in the two years following, and again in 1863, 1864, 1868 and 1870.

In the interval between completing the *Emotions* in midsummer and going to press in November, I had the misfortune to incur a bad sprain. The result of the first shock was to shake my system and lower the energies for several weeks. It was so far fortunate that my work now in hand was principally revising proofs. The crippling effect of the sprain became chronic, in spite of all the remedies that were suggested ;

and it was not entirely overcome for the next three years.

On offering the MS. to Parker for publication, I found he was dissatisfied with the slow sale of the *Senses*, which had now been out for three years. He, accordingly, recommended me to delay going to press for some time longer.

It was in November of this year that John Mill was released from the India House, and made his disastrous journey to the south of France, which led to the sudden death of his wife at Avignon. He returned forthwith to England; and, although seeing nobody for several months, he was ready to correspond upon matters that interested him. I took occasion to inform him of the difficulty that Parker made in regard to publishing the new volume. He at once took effectual means to overcome Parker's scruples. He intimated to Parker that Grote and he would take the liability of any loss that the immediate publication would incur, after a reasonable time allowed for sale. This, of course, removed the difficulty. The work went to press, and came out in March, 1859. Its publication stimulated at once the sale of the *Senses*, and the returns were such as to dispense with Mill's offered guarantee.

This matter being settled, I submitted the MS. for Mill's revision before printing. He went over

it carefully, and made occasional annotations,—which were, of course, valuable. Grote did the same, and contributed an addition to the discussion of the moral sense, with especial reference to Whewell's doctrine of a standard of right in the abstract (page 291). The handling of this point, however, extending over eight pages, I afterwards considered to be disproportionate, and abridged it.

Summer, 1859.

After the publication of the *Emotions*, in April, I repaired for a few weeks to Malvern, and hoped to get benefit for my bad foot, having employed a rubber for a daily application. There I received, almost together, letters from George Grote and his brother John, who were the first to read the new volume, and must, in fact, have perused it within a week. They were both complimentary, but in different ways. John Grote's criticism took exception to the thorough-going concomitance of mind and body, and gave certain indications of his own views, which had somewhat of the prevailing spiritualistic tendency. The following are the two letters in full; the first being George Grote's:—

"12 SAVILLE ROW,
"LONDON, 21st April, 1859.

"DEAR MR. BAIN,

"Since I saw you, I have read with attention through your vol. ii. I am happy to be able to tell you, with all sincerity, that it satisfies me *completely*. It has decidedly surpassed my expectations, which were nevertheless very great. Those portions which I saw in MS. read much better in print: and among the very best parts of the book, are some which I did not see in MS.: especially the chapter on Consciousness, and the admirable answer to Sir John Herschel. The chapter on the Ethical Emotions is most instructive and excellent. In short, I am very glad to have lived to see *such a book* in print respecting the Human Mind: so much transcending any other existing book on the subject—not even excepting James Mill's *Analysis*.

"Not one of your readers will derive more instruction from the book than I have derived: probably none will do such full justice to its many novel and original points of view, upon a subject of all others the most apparently hackneyed."

"TRUMPINGTON,
"CAMBRIDGE, 9th April, 1859.

"MY DEAR SIR,

"I received your volume on the Emotions and the Will some days since, and should have acknowledged it earlier through Mr. Parker or my brother, but that I wished not only to say that I hoped to have pleasure in reading the book but to thank you for some pleasure and profit received from it already, which I am now in some degree able to do. I am not certain that I should go so far as you do in your note, and say that the Psychological method is absolutely the best for the treatment of Ethical and Metaphysical subjects, but I feel satisfied of this that Psychology treated in

the manner in which you treat it is what no Philosophy can do without, and that whatever matter for philosophical investigation there may be besides and beyond the results you come to, the way in which you set about your investigations is such, that your results cannot fail to be of great and permanent value. Our worthy Scotch predecessors in the last century talked a great deal about introducing induction and really scientific methods into the science of mind, but I must say it appears to me that you have *done* it more than most of them did. There is in your book so much of exact observation and real fact, one is able so fully to feel that it is not words and names, but real facts and processes which one is reading about, that I think in regard to the *manner* of knowing, the *manner* of feeling, and the *manner* of willing, you stand on firmer ground than any before you, and on ground not likely to be shaken. You have apparently a knowledge of physiology greater than most of your predecessors, and the want of which knowledge has made me (for my own humble part) hesitate in following out some trains of thought which have suggested themselves. One or two of the things in both your books are things which I have taught myself without being able to give half as good reason for them as you do. Your books I should think would do more than any other of our time to satisfy people that there is something *to be learnt* in philosophy, and that it is not merely a matter to be disputed about; and the entire absence of that unscientific pretension, and quackery, and trenchant contempt of opponents, which our philosophic brethren are rather wont to indulge in, makes you an example to us all.

“Your last book, so far as I have been able to make myself master of it, seems to me to have done a great deal towards getting us into the right path both as regards the classification of the emotions, and as regards what we may call the *growth* and *history* of the Will. What I doubt is, not whether your views and investigations are in

the main true, but whether they bring us quite so much to the bottom and centre of things as you would have us think. I am not sure that you have given us quite as much account as we ought to have of the fact of personality,—*i.e.*, of *the fact* which corresponds to the feeling of consciousness. We go up the stream of sensibility and then down the stream of will, and so far as I as yet understand, you will not let us have a watershed or pass between the two, a point of transition from one to the other, but show us will taking its independent rise in *irritability*, then it and sensibility running side by side and gradually getting linked one to the other till there results intelligent will, or the will with which we rationally act. Now, about this irritability as the source of all, what I doubt is, true as it doubtless in a measure is, and to me a novel and important view, whether it is sufficient to account for *the whole* of the primary or rudimentary fact of will—is there not something more than bodily or nervous irritability, even in the first seed of volition? I have the same sort of doubt as to what you say about the emotions. The fact of the importance of the *bodily* change or modification (which is what some time ago in our language would have been known by the name of the *passion*, and which wants very much a special name for it now) corresponding to each sort of emotion, in respect of the analysis and classification of the emotions, is a thing which I have thought much about, but which rather wants one who, like you, knows more than I do of physiology to deal with it. But are you right in considering to the extent to which you apparently do the bodily phenomenon (wave of emotion, as you have, it seems to me, most happily described it) *the whole* of the emotion? What is the emotion, in its proper character, an affection of? Is it not of something, substance if we like to call it so, of which, perhaps, we may know nothing more than that it is so affectable and affected, but which there must be, and of which consciousness is a *sort* of knowledge to us? I

cannot conceive that the utmost refinement of analysis of the corporeal phenomenon of emotion will carry us beyond the region of *organs* or instruments, and *the self* which *uses* them must be something which has its realities, over and above what belongs to *them*.

“I have the same sort of doubt in regard of your views about knowledge. You have explained better, I think, than any one before you has how we feel and measure the infinitely varied mass of the sensible and measurable in the midst of which we exist, but what we *measure* is extension, and what we *feel* in sensation is sensible or chemical qualities; whereas what we *know* and *think about* is *things* each with a unity and supposed reality of its own. You scarcely seem to me enough to have described the nature of what you term “*the specializing forces*” of consciousness or attention—in fact, I somewhat doubt whether they are describable.

“I may be behind the age, but I can scarcely look upon it as a step forward to lay down the *relativeness* of knowledge or the very idea of it, as Sir W. Hamilton has done and as your principles require. But the post calls and I must conclude with thanking you again for your book and for the kind expressions of your note. Excuse the hurry with which you will, perhaps, think I have read your book, and with which I have certainly written this note. I should be glad if anything would bring you here, and if I could see you, but I fear I could not show you much philosophy.

“I remain, yours most sincerely,

“J. GROTE.”

Winter, 1859-60.

My plan of work to follow the *Emotions* was to take up the subject of Character, to be discussed

according to the psychological views set forth in my two volumes. This was begun at once, and carried on continuously during 1859 and next year.

The British Association met at Aberdeen in August of the same year, and it was my intention to be present at the meeting ; but I was so oppressed by the incapacity of my lameness that I thought it better to spend the autumn in Rothesay, with a view to general bracing. After several weeks thus spent, I went to Edinburgh for a fortnight, during which time I consulted Robert Cox's valuable phrenological library with reference to my projected work ; a thorough criticism of phrenology being part of the plan. Soon after returning to Richmond, I went to Cambridge, on invitation to visit John Grote at his Rectory, a mile out of Cambridge.

This visit was rendered notable by my being taken by Grote to luncheon at Trinity Lodge with Dr. Whewell. The main incident was that, during luncheon, Adam Sedgwick, the old geologist, came in in a state of great excitement, and addressed Whewell to this effect : "Well, Master, what do you think I've been doing all the morning ? Reading Darwin's new book on the *Origin of Species* that has just come into my hands." He, thereupon, indulged in a vehement diatribe against Darwin—in which Whewell concurred—for setting aside the Creator

in accounting for the Universe. Most curious and remarkable was his defiance of Darwin's evolution to bring about the races of animals and man as we find them—re-marking with vehemence, "I'll give you the Bank of Eternity to draw upon". He was, of course, unaware at that time of the limits put by physical authorities upon the age of the solar system. Sedgwick had made himself conspicuous by showing up the well-known "Vestiges" in the *Quarterly Review*; and he now felt much in the same mood with Darwin.

This was my first visit to Cambridge, with the exception of my attending the British Association meeting in 1845. I saw a good many of the University men, but did not derive anything very special in the way of information or suggestion. John Grote was very hospitable and friendly, and was himself an interesting man to talk to. He had all the candour and metaphysical tastes of his brother, without the thorough-goingness in his conclusions. The two brothers rarely met, but held one another in the greatest brotherly esteem, while freely commenting upon each other's positions.¹

¹ Among other points of community between those two brothers, it deserves to be noted that their word coinages are part of the debt that the world owes to them. The word "Autonomy"—George Grote's invention—is now indispensable in European politics. Equally valuable is John Grote's contribution to ethical nomenclature; it being only necessary to allude to the gap filled by the word "Hedonism," among others of less but still considerable importance, in ethical discussion.

I went on working at the *Study of Character*; the volume being fully planned. The chapter on the Characters of Theophrastus was contributed by Grote.

I obtained from Parker his consent to publish the phrenological parts in *Fraser*, in a consecutive series. The first appeared in May, 1860, entitled "Phrenology and Psychology". Three others appeared successively in September, November, 1860, and February, 1861. At this point occurred an unfortunate incident in connexion with the Magazine. The younger Parker, who managed both the publishing business and the editing of *Fraser*, had died. The editorship was undertaken by James Anthony Froude, with whom I came into correspondence in December (1860), after the publication of the third of the series. He accepted for publication the fourth, of which the MS. came at once into his hands, and brought it out in February. At the same time, he indicated that he considered the papers not sufficiently light for *Fraser*, and would not insert another. It so happened that the fifth had actually been sent, but could not now be brought out; it being his intention, accordingly, to return it. This, however, was not done. On the 3rd of March (1861), I had a communication to the effect that it had accidentally been destroyed by being carried away as waste paper—a circumstance that, of course, gave him the highest degree of annoyance. He was then in communication with Mill, in connexion with the publication of his "Utilitarianism" in the Magazine, and referred to him as arbiter of the mode of reparation for the injury he had caused. Whether felt or not, this was, as regards Mill, an unfortunate reminder of a far worse calamity that had overtaken himself with the MS. of Carlyle's *French Revolution*. Be that as it may, he indicated the course that might have suggested itself to Froude—either to give me the Magazine pay simply, or to print the article yet, if I chose to re-write it. I took the last alternative, and the

article appeared in June, 1861. With the exception of one chapter ("The Omissions of Phrenology"), this made up the first half of the projected work, and completed the review of Phrenology. The recess after my first college session (1860-61) was employed in finishing the work, which was published by Parker in the end of the year. It had a slow but steady sale, and in a few years the edition was exhausted; but, not seeing my way to the recasting that I thought necessary, I never reprinted it.

Last months in Richmond: Leaving for Aberdeen,
1860.

Early this year, the death of Professor Spalding created a vacancy in the Logic Chair in St. Andrews. The contest for the succession was chiefly between Veitch and myself. The patronage lay in the University Court, which consisted of six members,—*viz.*, Sir Ralph Anstruther, Rector; his assessor, Dempster, of Skibo; Principal Tulloch; John Hunter of Edinburgh, the assessor to the Chancellor; Dr. John Cook, minister in St. Andrews, assessor to the General Council; and Professor Ferrier, assessor to the Senatus. Besides sending each of them my two volumes, I called on them individually. In London, I saw the Rector, and was hardly seated in his room, when he bluntly told me that he had made up his mind whom he was to vote for, and I was not the person. Nevertheless, he still put

the somewhat inconsistent question, what were my antecedents. Of course, the testimonials could have told him this, if he had seriously wished it ; and I gave him a few words of civil answer and withdrew. The same day, I saw his assessor Dempster,—a very different style of man. He informed me that, in the interim of my visit to the Rector, he had seen him and heard of his decision, but added that he himself was still undecided and open, and would remain so to the last. He said he had got my books and would carefully look into them, and form the best judgment he could. His manner was not very assuring, and I was told afterwards by people who knew him that the whole thing was merely palaver,—as the result showed. I went down to Edinburgh to see John Hunter, who was Taxing Master to the Court of Session—an able and liberal-minded man, a member of the Free Church, and well read in a certain portion of German philosophy. He very soon gave me his opinion, in the expression that he considered my philosophy to be desolating. This, of course, was decisive. I then went to St. Andrews, where I found the three remaining members. Principal Tulloch was agreeable and friendly in conversation. He had written me to the effect that he considered my philosophical claims superior to Veitch's, but he was aware

that this was not the view of several other members of the Court, and that the decision would be very much affected by the question of orthodoxy, representing the difficulties of his own position in such a matter. Dr. John Cook was a gentlemanly enough man, but no palaverer. He said nothing to commit himself, one way or other; but his bias could be easily inferred. It was brought out still more distinctly in a letter to my friend Blake of Stobo, to the effect that my philosophy was simply physiology. Ferrier, of course, I saw, and freely conversed with, as of old. I had had from him previously a distinct promise of his vote, with an expression of his doubts of the others. I was pretty well prepared for the result, as given to me in an official letter, with which I received the following from Ferrier :—

“ ST. ANDREWS, 31st May, 1860.

“ DEAR MR. BAIN,

“ I have been intending every day for some time past to write to you, perhaps at some length, on the subject of Mr. Grote's note with which you favoured me. I put it off till I was able to communicate to you the result of this day's election to the Logic Chair, which, I am sorry to say, was decided against you. The other members, though they were highly complimentary to your great attainments, expressed themselves on the whole as favourable to Mr. Veitch. I, who spoke last in order, told them that I thought they were quite wrong, and that you, on all public grounds and on account of

what you had done, ought to have been chosen. There was no formal division, but I entered my dissent from the resolution 'on the ground of what I conceive to be the superior claims of Mr. Bain'."

This year saw the union of the two Aberdeen Universities, by Ordinance of the Universities' Commission of 12th March, in the year previous. That required a complete fusion of the two Colleges; and, there being only one Faculty of Arts, the Commissioners proposed an addition to the staff by creating a Chair of Logic. The strong opposition to the absorption of Marischal College in the united University operated to prevent the carrying out of the union for more than a year, and an appeal was made to the Privy Council against the ordinance. This appeal was heard before the judicial committee; and the result was that the committee confirmed the ordinance,—which, accordingly, was carried into effect forthwith. The 15th September of this year was fixed as the date when the union of the colleges should take place. Being informed by Dr. Clark (on 9th July) of the decision of the Privy Council, I was free to make an application for the new Chair of Logic, whose patronage was vested in the Crown. The Home Secretary was then Sir George Cornwall Lewis; and to him I addressed my application, having, of course, the support of his most intimate

friend, Mr. Grote. No sooner was my application generally known, than a powerful agitation was commenced in favour of my chief rival, Professor McCosh of Belfast. He had the whole support of the Free Church in Scotland, and the sympathies of the greater number of the Established Church members as well. He was also supported by the Lord Advocate, Moncrieff, and by the Duke of Argyle, who was a member of the Cabinet. Sir George Lewis candidly intimated to both of these that he was disposed to give the preference to me. This was fair warning, as it were; and it had the effect of rousing the agitation still stronger in favour of McCosh. Lewis was told also by the Lord Advocate and the Duke that my appointment would cost the Government four seats in Scotland. This threat probably made very little impression upon him; but, in order to have some independent authority to produce, he wrote to Russel of *The Scotsman* on the point,—and Russel's answer may be confidently guessed. The opposition in Aberdeen comprised—first of all, Principal Colin Campbell, and as many of the Professors of King's and Marischal Colleges as he could induce to aid him. He drew up a strong memorial, saying all that he could against me, and obtained a considerable number of signatures from the professorial body; using as an argument that they ought not

tamely to sit and see an infidel appointed to a Chair. The Free Church opposition was led by Dr. Brown of the Free Church College, afterwards Principal, who also made a strong remonstrance. Sykes, the city member, who was disposed to favour me, was bullied by a number of his leading supporters; and, being a man very timid when he thought his seat was in peril, he withdrew the recommendation that he had at first given me. In the parts of Scotland where McCosh was known, everything was done to support his candidature. On the other hand, I had in Aberdeen some very powerful aids to my application. James Adam of the *Aberdeen Herald* wrote a letter in his own incisive style, setting forth the case as he viewed it, and making some very strong observations upon the philosophical character of the Marischal College professor who was to be professor in the union,—*viz.*, Martin. Other friends wrote in my favour,—notably Dr. John Murray, who, though a Free Church clergyman, separated himself from the Free Church connexion, and from his own brother-in-law, Dr. Brown, and gave his opinion in a letter to the Home Secretary. Upon this letter, Grote and Lewis laid very great stress. I had also the support of several ministers of the Established Church, including Dr. Bisset of Bourtie and Dr. Davidson of Inverurie. My friends in

Mr. Arthur's congregation, including Mr. Leslie, afterwards Provost, rendered me considerable service. Of course, Lewis talked the matter over with Grote, telling him the nature of the communications he was receiving; and John Mill also had a talk with him, at the Home Office. Here, he read over to Mill, Campbell's letter, and especially the passage in it where he styled me a *Westminster Reviewer*,—upon which Lewis and Mill naturally exchanged some good-humoured chaff. This was a few days before the close of the session of Parliament; and Lewis, without saying in as many words that he meant to appoint me, remarked to Mill that he would go no further in the matter till Parliament was up, so as to avoid the appointment being brought forward by members in McCosh's interest. However, Parliament had no sooner risen than Lewis went down to his country seat and immediately sent up directions to the Office for completing my appointment. The Home Office letter was dated 10th September, 1860. In a private letter to Grote, dated 6th September, Lewis expressed himself as follows:—

“HARPTON, RADNOR, 6th September.

“MY DEAR GROTE,

“I am glad to be able to tell you that after a consideration of the letters respecting Bain, I have

decided to appoint him to the Chair of Logic, and I have given directions that this decision should be communicated."

Ferrier sent me his congratulations in the following letter :—

" ST. ANDREWS, 13th September, 1860.

" MY DEAR BAIN,

" I am very glad to hear of your appointment, and beg to congratulate you heartily. It does Sir G. Lewis great credit, and will raise him in the estimation of all right-thinking men. It is not only an act of justice towards you, but it is a damper to the Pharisees which was much needed, and will be highly approved of by all except themselves.

" Yours very truly,

" J. F. FERRIER."

The following reached me from Graham, and speaks for itself :—

" 4 GORDON SQ., W.C., 16th Nov., 1860.

" MY DEAR BAIN,

" Allow me to offer my late but very hearty congratulations on your new appointment at Aberdeen. Your success is a subject of rejoicing not only among your personal friends, but, I believe, with a wider intellectual circle who contemplate the event as a public acknowledgment of sound research in a most important department of knowledge.

" I have lately returned to town after spending a few weeks very agreeably in the South of France. My sister, who was not allowed to come to England in summer as usual, had regained her strength and appeared to be

remarkably well. She had learned of the Aberdeen appointment through Galignani with much interest.

“ We are now unusually busy on the eve of the issue of the new bronze coinage. I trust, however, to find time for the completion of two or three papers which have been too long in hand, within a few weeks.

“ With kind regards to Mrs. Bain, I remain, my dear friend, sincerely yours,

“ THOS. GRAHAM.

“ PROFESSOR BAIN.

“ I beg to enclose our new Halfpenny. It is an exact inch in diameter, and one-fifth of an ounce avoirdupois in weight. The ‘Pharos’ you are to look upon as an emblem of Britannia’s intelligent beneficence.”

In the beginning of October, I left for Aberdeen, with the presentation in my pocket. Little was said in Aberdeen, after the matter was all settled ; but, in the Free Presbytery of Edinburgh, an old college companion of mine, Hugh Martin, whose temperament was somewhat excitable and his evangelical tendencies rather extreme, attempted to get an expression on the subject ; but the attempt found no favour in Court, and was promptly suppressed by the cool business head of the Lord Advocate’s brother, Sir Henry Moncrieff. As the Logic class to which I was now appointed remained optional for two years, it was to be seen how far the opposition extended to depriving me of pupils. My first year’s class, however, was fully half of all the men of the third year in the united

University ; and Dr. Pirie sent his son George, by way of showing that he did not retain any want of confidence. The second year was much the same, not quite so numerous ; and the third year was, of course, compulsory. My English class was compulsory from the beginning ; but, in the first year, I had a very large number of voluntary students, partly from the higher classes and partly from the town. There was always a lurking dissatisfaction with the appointment, but it was seldom shown openly ; and everything would have gone on harmoniously, but for a rivalry of another sort which soon broke out in the University between the King's College and the Marischal College interests. The Commission had decided that the Arts classes should be taught in King's College, and that the Library should be placed there ; but, instead of acquiescing in this decision, which would naturally be final and irrevocable, an attempt was made, on the part of some, to obtain an alteration from the Commission. I was dragged into this movement, very much against my will ; and it was the beginning of a standing feud between the old Marischal College men and the old King's men. Principal Campbell had not the tact to conciliate the opposition, after he had gained his real point of augmenting all the salaries and retaining the classes in the Old Town, but made

himself a party man for King's in every conceivable question ; and thereby laid the foundation of his lifelong unpopularity—an unpopularity which was decisively started by his action in the first Rectorial election.

CHAPTER V.

UNIVERSITY WORK : PREPARATION OF TEACHING MANUALS—1860-1870.

Winter Session, 1860-61.

THE serious point of the situation naturally was to find material for carrying on the two classes that I had now to provide for. The designation of the Chair being Logic, Logic had necessarily the largest share of attention. Eight hours a week had been allotted to it by the Commission ; but, as it had to dovetail with Natural Philosophy, which had also eight hours—the teaching week consisting of five days,—one of the hours fell at three o'clock on Wednesdays, and gave me three hours' work on that day. The redeeming circumstance was the comparative smallness of the class, from its being purely voluntary. I had to provide successive courses on Psychology and on Logic. The first was a matter of no great difficulty, as I could lecture from my volume on *The Senses and the Intellect*. For the Logic, I was less prepared. Mill was so obliging as to make me free to order as many copies as I thought fit of his Logic for my class library ; and thus I was enabled to put a copy into the hands of every student

with a view to the class work. The students then read by turns selected portions, on which I made comments and gave additional illustrations. I had no MS. of my own as yet, and had written nothing for publication on Logic since the number in Chambers's *Information*.

For the English class, which was entirely new and had to be taught three hours a week, being intended for students of the first year, the selection of topics was as difficult as finding a mode of treating them. I had to take my stand upon the supposed grammatical attainments of entrants into the class, which, at that time, were probably not very great. In the schools, everything was regulated by what was understood to count in the Bursary Competition; and, hitherto, very little English was included. Still, English Grammar had been more or less taught in all the schools; and it seemed proper to assume that, and merely to advert to the higher subtleties, without spending much time upon them. Ultimately, the plan was adopted of devoting the first two or three weeks to such topics as those selected for the *Companion to the Higher Grammar*. The prescription for the Bursary Competition, or rather the questions actually propounded, showed the teachers what to expect; and thus a reasonable amount of grammatical attainment was taken for granted.

After the strictly grammatical portion, came a course of Composition and Rhetoric, which had to be shaped for the first time. Here, too, I had little prepared matter beyond the Chambers's *Information* articles and scattered notes. I distributed copies of the *Information* in the class, as a basis of oral exposition. Also, in order to provide easy reference to examples of style, I made a hasty selection of passages, which was put into the students' hands at Christmas. In subsequent years, these extracts were replaced and renewed from time to time, so as to vary and improve the choice. An endeavour was made, in the concluding weeks, to give a summary of English authors,—which could hardly be called a course of literature, but, so far as it went, amounted to the same thing,—that is to say, gave dates of authors, the list of their works, and the recognized specialities of their style.

All this was laid out in the rough during the first session, at the very great disadvantage of having a course in other subjects to carry on and elaborate for the first time. My successful rival and contemporary in St. Andrews, Professor Veitch, so felt the difficulties of the position (which was the same in St. Andrews as in Aberdeen) that he asked Ferrier to write to me for hints and indications that would be of assistance in his teaching; the fact being that we two stood alone in having to pre-

pare, in the same winter, courses on distinct departments, which properly demanded and have since obtained separate Chairs.

As to Logic, for which I was least prepared, I very soon contemplated and carried into effect the composition of a detailed course of lectures. Basing upon Mill, in all the parts beyond the usual syllogistic treatment, I made a number of changes, some of which had been specified in the *Information*, while others were gradually evolved as given in my logical treatises. Still, the treatment was so close that Mill's volumes, which might be in every student's hands, formed a convenient adjunct, and saved some lecturing time.

In 1861, a new Education Act was passed which placed the schoolmasters under a new *régime*, requiring, among other things, that they should appear and be examined at the nearest University seat, before being admitted. This necessitated the appointment of three Arts professors and three Divinity professors to act as examiners. I was appointed as a representative in Arts, and remained at the duty during all the years that the Act was in operation; taking for my department English Grammar, Geography, and Reading. The effect of this examination upon schoolmasters' attainments could not be said to be great. Much stress was laid upon the Shorter Catechism, which was specially mentioned in the Act; and one of the Divinity professors subjected the candidates to a trial of their understanding and of their mode of teaching selected questions. The system, of course, gave place to the Education Act of 1872.

Winter Session, 1861-62.

For this session, the Logic class was still voluntary, and the number was somewhat smaller than in the previous winter—probably, about thirty. The English class was also smaller,—yet, considerably above a hundred,—and met in the same stifling room. The manner of conducting the classes was much the same, but I found the work in every way easier. The Logic class could now be reduced to seven hours a week, so as to dovetail with the Natural Philosophy class, without the additional hour.

The preparation for the Bursary Competition in Grammar, as well as for the English class at College, seemed to require the indicating of some one grammar that the teachers might adopt in order to the most effectual preparation of their pupils. This was no easy matter. The choice of grammars at that time was not what it is now. There was not in existence any single grammar with the amount of fulness that was to be desired ; while the price of the better ones was four shillings and sixpence, or upwards. It was only recently that the system, begun in Germany, of the analysis of sentences had found its way into English grammars ; being taken up first by J. D. Morrell, then Inspector of Schools, and embodied in his grammar, which had considerable popularity, although by no means exhaustive of

the subject. It so happened that, as already mentioned, Findlater had occasion to give lessons in English to Bedford College in London, which led him to elaborate this topic of analysis; and, as he soon after came into the service of the Messrs. Chambers, he prepared for their *Information for the People* a number expressly devoted to English Grammar. Many new and valuable suggestions were thus embodied; and, in my teaching, I took full advantage of them.

In undertaking to supply the void by a text-book of my own, I had the encouragement—indeed, the urgent instigation—of many teachers; Dr. Beverly, of the Grammar School, being the most pressing. Nevertheless, I had, necessarily, a laborious task before me.

The concluding paragraph of the preface gives a list of grammars already in existence which had to be examined and, if need be, improved upon.

The composition of the grammar, commenced in 1862, occupied the whole of the summer of 1863, and was brought out in November of that year. My class assistant, Charles Forbes, executed the part on Derivation in the appendix, which, with the lists in the text on the sources of English words, made the work practically a key to the derivation of our entire vocabulary—a thing not attempted in any other grammar.

Winter Session, 1862-63.

It was not till the third session that the Logic course was fully composed; by which time the lecturing was tolerably easy. This session was the

first year of compulsory attendance, and the class, accordingly, attained its full dimensions.

Winter Session, 1863-64.

For this session, the course in Logic must have been completely reduced to writing, and my thoughts began to turn to the preparation of a manual of Rhetoric. In connexion with Psychology, I wrote for the Philosophical Society three successive papers on the physical accompaniments of mind, —which formed the most prominent psychological topic in my thoughts for several years ; the final outcome being seen in the volume on *Mind and Body*.

In April, 1864, we went to Aboyne—where the preparations for the *Rhetoric* were actively commenced. George Croom Robertson, who, during his stay in Germany, 1862-63, had made himself familiar with recent psychological research, as well as with the history of philosophy in Germany, gave me a number of useful contributions to a second edition of *The Senses and the Intellect*, brought out in February, 1864. The preface states the nature of the alterations that had been concocted by previous study for the purpose of the edition. This being disposed of, Robertson gave useful aid in connexion with the projected *Rhetoric*, not by scattered

hints, but by undertaking the composition of two whole chapters,—namely, the classification of the Species of Poetry and Versification. My own preparation consisted in extensive readings, so far as my time would allow, in our English classics, both prose and poetry, as well as in study of the Rhetoric manuals and critics of English.

To evolve principles of composition, and to find apposite examples to correspond, entailed an enormous strain ; and it took several years to bring it to a satisfactory issue. Of course, the work of the English class was constantly bringing into play whatever suggestions had been elaborated ; and the line of instruction took more and more the form of analysis of exemplary passages, carried on side by side with the enunciation of principles and maxims of criticism. I made as much use as I could of the existing scheme of Figures of Speech, giving an entirely new turn to the classification, and selecting only such as lent themselves to a definite rhetorical use.

To the Figures, followed the discussion of Number and Order of Words, as in Campbell's *Philosophy of Rhetoric*. The Number of Words was, of course, identified with the qualities of Brevity and Diffuseness,—which, however, could not be adequately dealt with under that head. So with Order of Words,—a very large designation, which could only be slightly illustrated when so introduced.

The Qualities of Style made a large department, and, although receiving a pretty full treatment, left much to be improved upon. The Intellectual Qualities—Simplicity and Clearness—were the most easy to delineate and account for. The Emotional Qualities—Strength, Pathos, and the Ludicrous—were indicated with tolerable correctness, but could not be said to have been thoroughly inves-

tigated. In the revised *Rhetoric*, the analysis of all of them, but especially of Pathos and Humour, had to be pushed much further. The quality of Melody admitted of easy analysis, grounded on the susceptibility of the ear to the various alphabetic sounds and combinations.

The laws of the Sentence and the Paragraph were elaborated upon first principles ; the former having already received considerable attention, while the theory of the paragraph construction had not hitherto been even named as a department of Rhetoric. Under the kinds of composition, Description for the first time found a place ; and as it so happened that this lends itself to the enunciation of specific rules and principles, it was, in consequence, received by Professor Masson and others as an integral portion of the department of kinds of composition. History or Narrative was much less manageable, but, nevertheless, was amenable to considerations that, when stated, could not be refused. The topic of Exposition was also fertile in suggestive hints, growing out of the very essence of scientific form. This portion of the subject could have been worked out thoroughly, and would have deserved a separate manual, if I had ever been able to overtake it. It was the branch of Oratory or Persuasion that brought into the foreground the more valuable and ambitious portion of the ancient rhetoric. It was, however, left much less complete than could be wished ; the vastness of the field being too overpowering for the strength that I could devote to it. The remaining department of Poetry was simply reduced to definition, to which was added a statement of its leading conditions. The analyzed extracts at the end were meant to dovetail with the statement of principles as carried on in the habitual conduct of the College class. They were useful in indicating the authors that most readily lent themselves to rhetorical teaching—at least, so far as I had been able to discover at the time.

The work was finished and brought out at the end of the session 1865-66 (March).

Professor Ferrier's death made a vacancy in the Examinership of the University of London, to which I was again appointed, and which I retained for five years, and then ceased to hold for good. My eleven years' tenure of this office had the effect of introducing widely into the colleges the volume on *The Senses and the Intellect*. At the same time, John Mill's *Logic* was extensively studied, with a view to the examinations, and was of very great service in retaining Logic and Mental Science in the University curriculum. The disposition among the more scientific members of the Senate, and, more particularly, of the medical members, was to take a low view of the utility of Logic; but they recognized the value of the Induction half of Mill's treatise, and acquiesced in the imposition of a Logic and Mental Philosophy pass at the final M.D. examination. For this pass, candidates prepared both Mill and the volume on the *Senses*.

Winter Session, 1864-65, and Recess following.

I engaged to deliver a course of three lectures, on the physical accompaniments of mind, at the Royal Institution of London. The lectures consisted of an expansion and improvement of the papers delivered to the Philosophical Society, and were very nearly as reproduced in *Mind and Body*. These lectures were delivered in April and May,

1865, and afterwards reprinted in the *Fortnightly Review*. Subsequently, I went to reside at Weston-super-mare, and there wrote for *Macmillan* the articles on Grote's *Plato*, which had just been published. I had to be in London again during part of June and July, and witnessed Mill's election for Westminster. I wrote a short account of Mill's character and career for circulation among the electors, to whom it was nearly all new.

In autumn, I was engaged to deliver a course of lectures at Newcastle,—which I took on the way to the B.A. examination at the University of London, returning to Aberdeen to open the session, all the spare hours of which were occupied with the publication of the *Rhetoric*.

Second Edition of "Emotions," November, 1865.

The preface to this edition states the amount of change introduced, which must have occupied a large part of the summer of 1865, although not the whole work of that summer. The changes, albeit considerable, were much fewer and less extensive than those introduced into the third edition, which came out ten years later.

Winter Session, 1865-66.

The principal work of the year 1866 related to the preparation of *Mental and Moral Science*.

In January, a lecture on Early Greek Philosophers was delivered by me to the Mechanics'

Institution in Aberdeen, and printed in *Macmillan* for June of that year, but not put to further use.

I had the curiosity to go to Edinburgh in April to hear Carlyle's Rectorial Address, which excited considerable interest.

The work of the summer was principally on the Ethical writers,—in which Croom Robertson took a part. He had at present no other engagement, having ceased to act as Assistant to Professor Geddes,—a position he had occupied for two sessions.

In December, occurred the vacancy in the Chair of Philosophy in University College, caused by the compulsory retirement of Professor Hoppus, who had been the first appointed to the Chair, under the auspices of James Mill, and a deplorable failure throughout. James Martineau and Robertson were the rival candidates. The contest was keen and rancorous, and the majority that carried Robertson very narrow. A dozen of years later, it was generally admitted that the appointment had fully justified itself. Robertson gave his opening lecture in the beginning of 1867, and henceforth resided in London. His contributions to the *Mental and Moral Science* volume had been already almost finished, and he merely assisted in the revision for the press.¹

¹ In Section III. of the Introductory chapter, there was a modification introduced by Robertson, in order to guard the metaphysical side of the definition of Mind,—namely, in the words, "But,

Mental and Moral Science, 1865-68.

The second edition of the *Senses* having been brought out in 1864, and that of the *Emotions* the year following, I entertained the project of a single compact treatise that would be an abridgment of the two large volumes, and would include, besides, a historical view of the great leading controversies, together with a complete account of Ethics, both dogmatical and historical. As regards the Ethical portion, preparations were commenced in the summer of 1865; Croom Robertson having undertaken certain portions, which I took occasion to specify in his memoir.

The psychological abridgment was prepared exclusively by my own hand, with occasional novelty of illustration, but nearly in the same order and plan as in the larger volumes. I had no assistance in the historical view of External Perception or in the Theories of the Beautiful; but, under Liberty and Necessity, some part was taken by William A. Hunter, who was then a candidate for the Shaw Fellowship. The history of Nominalism and Realism contained the view of Aristotle's and Plato's opinions on general ideas, by Grote.¹ On the Origin of Knowledge, Grote gave a hostile criticism of Hamilton's inclusion of Aristotle among the philosophers that have vindicated the authority of Common Sense.

Dividing the Ethics into the two parts, "Theory of Ethics" and "Ethical Systems," I laid out the former in a summary of the foundations of ethics, elaborated point

as Object-experience is also in a sense mental". It would not have occurred to me to introduce the qualification at that early stage, although I was bound to admit its propriety. The critic who reviewed the work in the *Athenæum* was De Morgan; and, notwithstanding that the volume extended to nearly 900 pages, the criticism was entirely occupied with the bearings of that single expression,—perhaps, the most curious instance on record of narrowness of reference to a book under review.

¹ The more purely Scholastic History in the Middle Ages was given by Croom Robertson, down as far as Hobbes.

by point in discussion with W. A. Hunter, who had made himself familiar with Bentham's illustration of the difference between punishment and reward as ethical motives. I have never seen any reason to change the mode of handling thus adopted, although, in the ethical chapter in the *Emotions*, the ground gone over took a somewhat different direction.

The ethical writers, as abstracted by myself, were treated on the plan of describing in detail the works of each, and in appending a summary of views upon a uniform plan. For Socrates and Plato, as well as the Cynics and the Cyrenaics, I had the advantage of Grote's *Plato*. By the help of Sir Alexander Grant's book, I made an abstract of the Nicomachean Ethics of Aristotle, which Grote thoroughly revised ; he also contributed the doctrines of Epicurus and the Stoics. Croom Robertson's contribution was the Neo-Platonists, the Scholastic Ethics, Hobbes, Cumberland, Kant, Cousin, and Jouffroy.

Other topics, comprised under the historical appendix, were the subject of HAPPINESS, CLASSIFICATIONS OF THE MIND, and the meanings of GENERAL TERMS.

The work occupied part of 1865, and the whole of 1866 and 1867, being published in April, 1868.

Winter Session, 1866-67, and Recess following.

In December, 1866, I read, at the Philosophical Society, a paper on "Some Common Errors on the Mind". The idea of the paper was to give a practical direction to Psychology, so as both to justify its utility and to determine the selection of matters for special stress. The composition of the paper concurred with the shaping of the psycho-

logical abstract in the *Mental and Moral Science* treatise. The specific object contemplated by the paper was ever present with me in all succeeding work.

In the beginning of January, Robertson left for London, and, on the 8th, gave his inaugural address at University College.

Going myself to London in May, I delivered, at the Royal Institution, on the 18th, a Friday evening lecture, “On the Correlation of Force in Relation to Mind,”—printed in *Macmillan*, in September. At the lecture were present, among others, Sir William Grove, Herbert Spencer, and Dr. Frankland. The interest of the lecture was partly physical, and partly psychological. On the physical side, was promulgated for the first time the distinction of Molar and Molecular in the enumeration of the correlated forces. The designation “molar,” as representing the mechanical forces, was given to me in private conversation by Graham; and I made use of it on all occasions when these forces had to be classified. Its appropriateness was at once perceived by Herbert Spencer; and it was henceforth adopted in his own expository handling of the forces. Wishing to give me the credit of the suggestion, he asked me if I claimed the authorship,—which I could not do.

On the psychological side, the question was

raised as to the precise mode of including mind with the correlated forces. The thorough-going alliance of mind and nerve being assumed, and its being understood that nerve force was a member of the correlated group, and, further, that nerve-action might or might not be accompanied with consciousness, the point was : Did consciousness, as such, involve a definite expenditure of the force ? The question is one proper to be put in reference to the relation of mind and body, but is, to all appearance, insoluble. It was afterwards discussed in my article in *Mind*, entitled "Mind and Body," relative to Mr. Malcolm Guthrie's *On Mr. Spencer's Unification of Knowledge* (vol. viii., p. 402).

This year, the Government appointed a Royal Commission on the supply of water to the metropolis. As Clark was both unable and disinclined to offer himself as a witness, I volunteered to the Duke of Richmond to appear before the Commission and state what I knew on the subject. It was entirely a work of supererogation ; but I received an invitation, and appeared on the 29th of May. Partly from my experience at the Board of Health, which gave me a complete knowledge of the Board's futile Bagshot scheme, and partly from my long intimacy with Clark, I was able to make out a case for volunteering as I did to instruct the Commission. By this time, however, Clark had lost all

personal interest in the success of his purifying process. Not only the original patent of fourteen years, but the renewal for other seven years, was now exhausted.

The last service that Clark was able to render to myself was in settling the title of the volume now in progress. Several forms had been discussed between us, and, at last, we came to the title actually employed, which has been generally accepted as peculiarly suitable. The combination Mental and Moral Science was occasionally adopted by the Civil Service Commission for the range of topics covered by the work.

Winter Session, 1867-68, and Recess following.

In November, 1867, I read a paper at the Philosophical Society on "The Retentive Power of the Mind with Reference to Education,"—the first of the papers prepared in anticipation of the volume on *Education as a Science*.

On the 21st of November of this year, Thomas Clark died. I had had communications with him on various matters besides the title already referred to, and was not prepared for his passing away so speedily. I had occasion to prepare a sketch of his life for the Chemical Society,—which was afterwards read before the Aberdeen Philosophical Society, and printed in the *Transactions* of that body.

In the end of 1867, I had had my attention directed to James Mill's early life by some researches of Masson into the College records where his name appeared. I communicated the circumstances to John Mill ; but he declined to entertain them, as shown in the letter reproduced in the actual biography.

In the month of April, 1868, occurred the publication of *Mental and Moral Science*. In May, I went to London, and delivered the second course of lectures at the Royal Institution, on "Common Errors on the Mind" ; use being made of the paper on the subject which I had read at the Philosophical Society. The scope of the course is shown by its appearance in part in the *Fortnightly Review*, and, ultimately, in *Practical Essays*.

The work of the summer included the contributions to the new edition of James Mill's *Analysis of the Phenomena of the Human Mind*, and also the revision of the *Senses* for a third edition.

As to the *Senses*, the preface indicates the more important amendments ; among these being the classification of Reflex Acts obtained from the recent Physiological work of Vulpian, to which, as yet, no material improvement has been suggested. It was to this edition that Grote contributed his Analysis of the *De Anima* of Aristotle. This was founded on a request that he would furnish me with a brief sketch of Aristotle's treatment of psychology proper ; but, on sitting down to the work, he could not refrain from an exhaustive review of the whole treatise. This was not required for my

purpose, and was somewhat out of proportion ; but he felt that he might not again be able to overtake this portion of the Aristotelian writings, on which he had been already occupied for five or six years, and it would ultimately find a place in the final result of his labours. In point of fact, it was reprinted in the posthumous work on Aristotle brought out the year after his death. It was, consequently, dropped from the fourth edition of *The Senses and the Intellect*.

The following abstract comprises an account of the part taken by me in the new edition of James Mill's *Analysis* :—

J. S. Mill having undertaken a thorough revision of his father's *Analysis*, I took part in a number of leading topics ; he at the same time giving his own views on the several points. My first annotations related to James Mill's handling of the several Senses, both as to the order and as to the doctrines connected with each ; being much the same as had already been embodied in my other volumes. So with Mill's chapter on the Idea, considered as a product, result, or trace of sensation. The burning question of Sense-Evolution was handled in part, but chiefly with reference to the supposed growth in the individual lifetime. Mill's great deficiency of view in respect to the laws of Association, which had already been animadverted upon by Hamilton, had to be met by showing the independent standing of the law of similarity.

James Mill's chapter on Consciousness led to critical remarks upon the proper use of the term both by John Mill and by myself. Nevertheless, the handling came short of the niceties of the case, chiefly from the extremely wayward employment of consciousness as a leading term. The mistake was made of regarding the word as co-extensive with mind as a whole. This I endeavoured to show

afterwards (*Mind*, N.S., vol. iii., p. 348) by calling attention to the wide distinction between mental states now awake or alive, and the stored-up products of all previous moments of consciousness.

The subject of Belief received from Mill the consideration that it properly deserved; and the chief comment lay in gathering together the numerous bearings in his scattered treatment, and in presenting the same coherent handling as was given in *The Emotions and the Will*.

In Mill's second volume is contained his treatment of some intellectual functions, under the guise of explanation of terms. It seemed necessary to make some remarks on his "Relative terms" as implicating the essential connexion of our knowledge with relative couples; each mental state being conditioned by some foregoing state, which, being different, the present state would be different. This principle is of universal cogency, but is not in all cases expressible in the same terms. The relativity of light and dark, of hot and cold, of up and down, would exemplify the extreme cases of the mutual dependence of the correlative couples. The relativity of colours is not of the same sort. Our sensation of redness does not, obviously, owe its precise mode of consciousness to any one other assignable sensation of colour, or to any number of such sensations; it is simply made more precise and definite, and is, perhaps, intensified by the comparison with other colours. An experimental investigation would be required for ascertaining and determining the matter of fact in the case. This point has been handled by Dr. James Ward in his article "Psychology," in the *Encyclopædia Britannica*.

By adhering to the current binary division of the mind, Mill was unable to give proper positions to the affections and emotions; and his account of these was neither methodical nor exhaustive. No attempt was made to remove those defects. John Mill himself confessed that he was unable to grapple with the Sublime and the Beautiful without an

amount of study which he could not devote to the topic. The ludicrous, wit, and humour were excluded from the author's treatment ; while, under the affections, there was no place for the malevolent group, except, perhaps, a passing allusion to hatred, without any attempt at analysis, still less at running it up to the generic emotion of anger. No attempt was made either by John Mill or by myself to supply these gaps.

The author's analysis of the Moral Sense was thorough-going, so far as it went. Of course, he treated it as a compound, in opposition to the prevailing views, and was bound to set forth its constituents. We bestowed a considerable amount of criticism upon this handling ; the delicate point being the source of disinterested conduct. On this subject, both father and son kept to the doctrine of association,—according to which, self is the primary source of sociable feeling, or in other words, of not-self. To this view John Mill adhered to the last ; it had also been Bentham's view. In my opinion, the explanation halts ; and I partly indicated as much in my note, having argued the matter more fully elsewhere.

Under the Will, the author's handling is purely psychological ; being an attempt to resolve it into its elementary functions. In this, he was very successful. The strain of criticism took the direction of re-classifying the movements adduced, and showing that some were properly referable to other heads. Such were Reflex movements, movements of Emotional expression, and movements instigated through Ideas ; all which are now recognized in the psychology of movements.

The work appeared in the beginning of 1869.

Winter Session, 1868-69, and Recess following.

The year 1869 saw the full strain of the composition of the *Logic* ; there being, seemingly, no

interruption beyond the usual official work. In April, I went to Edinburgh for the LL.D. degree,—which was given to a large, distinguished company, and, among the rest, Matthew Arnold, with whom I travelled south next day; he leaving for the Lakes. In conversation with him, I seemed to discover his plans of working and immediate designs; and, in the portion of the Caledonian line that passed through the sheep country, on the way to Beattock, I fancied, from the turn of his observation, that he was gathering ideas for his *River of Time*. After six weeks in London, I returned to Aberdeenshire; and, for three months, at Howford, near Inverurie, I was exclusively occupied with the most laborious part of the *Induction* volume—*viz.*, the Logic of the Sciences,—no part of which had ever come into class teaching. The whole department was laborious in the extreme; most so of all, the treatment of Biology, in which I made the attempt, among other works, to follow Herbert Spencer's volume on the subject, where he carried pure speculation farther than in any of his other treatises. But I found it very little available for the end I had in view. The great crux of Biology being the formation of the animal germ by derivation from the mature individual, and containing *in petto* the vast complications of the parental framework, both he

and Darwin made ineffectual efforts to render it hypothetically. The problem is, indeed, in all likelihood, the very last that scientific research shall ever grapple with. Even in the mere definition of life, many futile modes had obtained currency, while a feasible and workable scheme appeared to be within reach.

In Mathematics, great assistance was rendered by Professor Challis's book on *Calculation*; while De Morgan furnished almost the solitary instance of a great mathematician disclosing the logical weaknesses of geometrical teaching.

In Physics, advantage was taken of the distinction of molar and molecular in laying out the arrangement of topics, otherwise somewhat confused.

Chemistry was isolated by reference to the atomic theory; and special attention was paid to the management of the exposition of the elementary bodies and their compounds.

The fundamental sciences closed with Psychology. Then followed a review of the Classificatory sciences—*viz.*, Mineralogy, Botany, Zoology,—with a view to their plan of arrangement; it being necessary to criticize and amend the methods pursued in current systems. The logic of Practice was intended to cover the special province of Ethics. Sociology or Politics next came under review; it being prac-

ticable to set forth the advantages of introducing the entire compass of logical nomenclature and method in checking the vagueness of the usual treatment of the political province. Here I found Sir George C. Lewis's *Methods of Observation and Reasoning in Politics* of the greatest value—indeed, after Mill's work, the only useful contribution to the subject. Finally, the vastness and vagueness of the practical science of Medicine had to be grappled with in the same fashion, by way of showing the practical utility of a similar treatment. Very few medical works seemed able to stand the scrutiny of such a proceeding.

I found Venn's treatise on the *Logic of Chance* valuable, both with reference to Chance and to some other matters. Grote was particularly impressed by his criticism on Succession *versus* Continuity. Venn, moreover, did good work afterwards in his *Symbolic Logic*,—some parts of which I should have been glad to adopt, more especially his amended form of the Diagram of the Syllogism. It was in the present year that Venn became Examiner in the University of London.

The winter session, the summer of 1869, and the following session must have been closely devoted to the production of the *Logic*, which was published in March, 1870. The general design was stated in the preface. It was to give a compact and exhaustive account both of Deduction and of Induction, making full use of what Mill had done,

more especially in the latter, and supplying various topics more peculiarly my own.

While partially adopting Mill's manner of approaching the definition of Logic, I considered it relevant to introduce the subject (1) with a statement of the psychological data or presuppositions, (2) with the nature of knowledge, (3) with the classification of the sciences,—all which I reckoned as useful contributions to logical culture properly so called. I modified somewhat the received handling of Formal Logic, adopting some of Mill's views that I now consider to have been mistaken. The chief of these was regarding the axiom of the Syllogism as grounded on experience or induction; to which was added the accepting of Mill's theory of the Syllogism as a *petitio principii*. Becoming convinced of the erroneous strain of all this, and finding it difficult to correct the text without re-setting many pages of the stereotype, I gave, in the second edition, a supplementary note, with the object of correcting the error. The fullest exposition, however, of Mill's defective point of view was in an article in *Mind* (vol. iii., p. 137)—to which I have nothing further to add.

Another misleading suggestion—not, however, peculiar to Mill—was in devoting two distinct chapters, one on NAMES OR TERMS, the other on CLASSES, NOTIONS, OR CONCEPTS. The consequence of reiterating those distinct heads in class work was that I came to see that the second was substantially a repetition of the first. The classification and detail could not be other for the Notion than for the Name. The conclusion finally arrived at was to have only one heading—namely, the class, notion, or concept—to exhaust the varieties of these, once for all, and to conclude with some observations on the bearings of language or names, with which concepts were inevitably associated.

Under PROPOSITIONS, after the usual scholastic distinctions, I adopted Mill's enumeration and classification according to Import. Properly speaking, this had no place

in Deductive Logic; it had its application purely to Induction. Mill's fivefold division—*viz.*, Existence, Co-existence, Sequence, Causation, Resemblance—I reduced to three heads, Resemblance, Co-existence, and Succession, striking out Existence and reducing the statement of the remaining four to three. Mill himself did not acquiesce in this modification, and counter-argued it, more especially as regards the meaning of Existence. This point I discussed in *Mind* (vol. ii., p. 259) in a note on "The Meaning of 'Existence' and Descartes' 'Cogito'."

In the appendix to *Deduction*, the classifications of the Sciences were reviewed; the Province of Logic discussed with Mansel; the Enumeration of Things presented in full,—the Universal Postulate considered under the Primary Assumptions of CONSISTENCY and NATURE'S UNIFORMITY. On all these topics, I have found nothing to change.

The chief innovation in the common handling of the strictly formal treatment of propositions was the stress laid upon *Obversion*, both Formal and Material. Obversion I regarded as preferable to the term Contraposition, which could not be worked in the same thorough fashion. The carrying out of Obverse statement is the one thing wanted to complete syllogistic inference, as Aristotle left it. Indeed, the thorough-paced working of Relativity seems the source of all the genuine improvements in Formal Logic. In class teaching, I made large use of the obverse handling, to show the power of logical analysis in stripping off the disguise of distorted language, and especially of rhetorical distortions which are the most frequent of all.

To render the work more useful as a class book, I included the additions made to the Syllogism by Hamilton, De Morgan, and Boole. Many other attempts have been made to introduce a species of algebraical notation for the same end. The value of these emendations will some day

have to be discussed; but, in the meantime, they are favourite exercises of ingenuity with many authors, and must be left to find their level. They may be compared to the attempts of mathematicians to multiply the formulæ for solving the same questions: they cannot all be necessary, but they offer a choice for our adoption.

The volume entitled *Induction* comprised also the department of Definition. Under Induction proper, the treatment of Mill was followed with a few changes reckoned to be of importance. The order of the topics was considerably changed, the chapters being fewer and more condensed. Some alteration was required, in consequence of the amended classification of Propositions according to Import. The entire subject fell under three departments—Co-existence, Causation, and Equality. Causation is notoriously the predominating department of inductive inquiry and proof. Co-existence is a comparatively limited portion. In Mill's treatment, it occurs at the end of his exposition; while I have seen fit to take it in advance of Causation.

I have found it extremely difficult to improve upon Mill's chapters devoted to Causation, including his Experimental Methods, which are the key to all that follows. His Deductive Methods opened up the treatment of secondary laws, which he traced out under various heads, including the Explanation of Nature, the Difference between Empirical and Derivative laws, and the extension of such laws to "Adjacent Cases". The first start in the Deductive Method was stated by him as "The Ascertainment of the laws of the separate causes by Direct Induction"; the stress of the process, however, being, as he calls it, "Ratiocination from the simple laws of the complex cases". Simple Deduction in a single thread is omitted from his handling, and I have endeavoured to show that the omission might profitably be supplied. This is the point where *Real* Deduction, incorrectly imported by Mill into the treatment of

Syllogism, should have a place and become the centre of a Logical Method. Substantially, it is the question of the establishment of an identity among concrete facts or observations ; this identity entering into both Induction and Real Deduction. What is wanted is to discern the *essential* point of agreement among the facts brought under a general law. The help to this discernment is to ascertain and indicate the *allowable differences* accompanying this essential agreement. The chapter on "Chance" contained, as originally written, some mistakes as to the calculation of Probabilities. Even after these were rectified, through the suggestion of mathematical critics, the doctrinal foundation has been subjected to a severe strain by its being used to defend the recent views of psychical spiritualism, which seem to have obtained a certain amount of confirmation through its aid.

Especially important was Mill's concluding chapter entitled "The Grounds of Disbelief," or the conditions of Credibility and Incredibility. This matter had never before had so thorough a handling. The real weakness of the case for spiritualistic doctrines would seemingly be best brought out by the application of these tests.

In Mill's fourth book—*Of Operations Subsidiary to Induction*,—he includes a number of topics which I have distributed differently. "Observation"—the topic of his first chapter—I have taken as one of the sources of knowledge, and mentioned it in that capacity in the introduction ; giving reasons why it should not form a division of the subject comparable to the three others adduced. In an interesting chapter, "Abstraction, or the Formation of Conceptions," he goes over the process of generalizing notions from particulars, and giving them common names. This exposition is meant as a counterblast to Whewell and the school of innate ideas. It is even more appropriate to Psychology than to Logic, although not improperly introduced there. The remain-

ing chapters of the book belong to Naming, Definition, and Classification, and, as I conceive, are better given under the head of Definition, for which a theory and conditions may be assigned, to be followed up by everything that relates to general naming and classification. All these processes may be properly or improperly carried on,—in the one case aiding the search for truth, and in the other case the opposite. First, as to Definition itself in the strict or narrow sense—the obvious and proper mode of arriving at a general notion from particulars is to gather in and compare those particulars. In doing so, there are certain pitfalls to be encountered, and the manner of surmounting them needs to be suggested : for example, the existence of a margin of transition. All-important in definition, as in so many other things, is the clear enunciation of the negative notion, together with an assemblage of particulars in reference thereto. After the Negative Method comes Deductive Definitions, the Language of Definition, and Ultimate Notions. Under these heads, the criticism of dictionary defining, with all its looseness, becomes relevant and imperative.

The remaining chapters of the book cover ground occupied by Mill in his last chapters. The more original suggestions have reference to the arts and machinery of Classification,—in respect of which the natural sciences are all open to improvement in some points, while realizing good examples of method in others.

Mill's fifth book, on *Fallacies*, was a very great enlargement of the field, as compared with the current treatment by logicians. Besides collecting Fallacies of Syllogism, he made a large collection of other kinds of error, partly due to inadvertence and partly to prejudices, or the operation of the feelings. Every such collection is necessarily of value. De Morgan's work on *Formal Logic* was relieved by a most piquant and suggestive chapter on "Fallacies". Adopting Mill's breadth of treatment, I considered it neces-

sary to discuss the reasons for constituting Fallacies a detached branch of the subject, instead of adducing them in connexion with the logical principles or methods that they were supposed to violate. Nevertheless, I made it appear that a defensible and profitable handling of the whole subject might properly constitute a chapter apart,—which, accordingly, I saw fit to provide, with such modifications as the position taken up seemed to require.

Mill's concluding book, on the *Logic of the Moral Sciences*, enabled him to discuss with his usual ability and resources the logical methods and erroneous tendencies to be found in the treatment of the Human Mind and Society. It was my policy, initiated in previous sketches of the subject, to review the applications of Logic to a wider scheme of the sciences. The five fundamental sciences—Mathematics, Physics, Chemistry, Biology, Psychology—were copiously treated in everything upon which Logic had a bearing. Many innovations as regards the arrangement, methods, and even doctrines occurred in the course of the handling. Little or nothing appears to me to be in need of special emendation in this elaborate analysis.

A chapter on the sciences of classification dealt with the existing modes of classifying in Mineralogy, Botany, and Zoology,—in all which improvement is still going on. By the Logic of Practice is meant the groundwork of Ethics, in so far as scientific. The Logic of Politics, or Sociology, is both theoretical and practical, and is regarded as such. A concluding chapter contributes illustrations and suggestions of the logical kind to the practice of Medicine.

An undertaking so arduous could not but have occasional failures ; but, so far as I know, no serious flaws have as yet been pointed out for me to rectify.

A number of topics connected with the subject, although not falling into the systematic array, had to receive a special treatment. Some of these were purely historical,—as the

Classifications of the Sciences, and the Growth of the Logic of Induction, meaning the writers previous to Mill. Others were controversial,—as the Province of Logic, the Universal Postulate, Analysis and Synthesis. A third class were more purely didactic,—as Historical Evidence, and, most important of all, the Art of Discovery. Under this last topic, it had to be shown how far the logical operations primarily conceived as bearing upon evidence, could, directly or indirectly, aid Discovery, and what other means had been suggested for this grand object.

In the *Logic*, I had valuable assistance from William Minto—partly in suggestions, and partly in the composition of the chapter on the “Growth of Induction”. The Note on the Historical Methods was composed by W. A. Hunter.

Among the home incidents of the year, was the triennial Rectorial contest, which ended in a tie of nations between Mr. (now Sir) M. E. Grant Duff and Sir William Maxwell; the Chancellor giving his casting vote for Maxwell. The circumstance that brought on the tie was an apparently irregular vote by a young man who had been an assistant to Professor Brazier, and was not a regular student, but matriculated for the nonce. During a stay at Bridge of Allan in the Christmas holidays, I took it upon myself to explain this incident to Sir W. Maxwell,—in consequence of which, he declined the appointment, to the no small dissatisfaction of his supporters and friends. There was no help for it but to hold a second election and appoint Mr. Grant Duff, without a contest. No Conservative, as such, was again elected till 1887.

Winter Session, 1869-70, and Recess following.

After the publication of the *Logic* in March, I had some correspondence with Mill on the points of difference between my treatment and his.

In the course of this year, I received intimation from the publisher that the second edition of the *Emotions* would soon be exhausted. I was not, however, prepared for an immediate revision of the work, having had in contemplation a good many changes. When, at the end of this year, Spencer's revised *Psychology* came out, I made a careful reading of it, with a view to suggestions, many of which I found of great value. But, as the entire scheme of the work was based upon Evolution, his mode of reproduction and arrangement of his thoughts was distinct from mine. The actual publication of the third edition of the *Emotions* did not take place till 1875.

SUPPLEMENTARY NOTE TO CHAPTER V.

Proceedings of the General Council, 1860-70.

Here may properly be given a brief account of the various movements that agitated University circles, during the first ten years after the Union of the Colleges. As the circumstances of the case had created two Academical parties—the Old Town Party and the New Town Party,—burning questions were perpetually cropping up, in which I had necessarily to take a part. They related chiefly to the site of the University Library, the

inclusion of Natural History among the subjects imperative for the M.A. degree, the institution of Local Examinations, and the creation of a B.A. degree. Involved with these were the Election of a Chancellor, and appointments to the Assessorships. As the topics referred to were exhaustively debated by the General Council of the University and action taken on the results arrived at, the short narrative that I intend to give had best assume the form of an abstract of the doings of the General Council from 1860 to 1870.

At the first meeting, on 10th October, 1860, the election of an Assessor was proceeded with; Dr. Kilgour being nominated by Baillie Forbes, and Rev. Dr. Bisset, of Bourtie, by Rev. Dr. Paul, of Banchory. There was a party division, of course, but it was not on this occasion what it came to be afterwards. It was more Established Church ministers against laity and dissenters. The result of a poll was in favour of Dr. Kilgour.

At the meeting in April, 1861, the Chancellor had to be elected. Sir Alexander Anderson, as representing Toryism, proposed the Duke of Richmond. The Liberal Party, of which John Duguid Milne was a prominent representative, was unable to do anything but acquiesce in the Duke's appointment. Thereafter, a protest was entered by Duguid Milne against the election of Maitland, the Solicitor General, as Rector,—which election had been determined by the casting vote of the Principal, there being no Chancellor. He also moved a series of resolutions upon the whole question of the casting vote in the equality of nations,—which was carried against an amendment by Norman Macpherson of substantially the same purport. A motion was also made and carried in favour of including the class of Natural History in the Arts curriculum, it having been omitted in the General Ordinance of the Commissioners. This view found acceptance with the University Court—being carried there by a narrow

majority—and led to the issue of an Ordinance which enabled it to be brought into effect.

In October, 1861, extra-mural teaching was pressed, in a motion by Dr. Beveridge, and seconded by John Duguid Milne, and was carried against several amendments. This movement for extra-mural teaching came to nothing ; the Court resolved that it had no power to deal with the subject. Mr. Duguid Milne raised the question of the site of the University Library, in the shape of a notice for next meeting.

In April, 1862, an attempt was made by Baillie Forbes to give more publicity to the proceedings of the Court and the Senatus ; but the motion was lost. At this meeting, it was proposed (for the first time), through Mr. Humphrey of Comalegie, to introduce Local Examinations, after the mode of Oxford and Cambridge. The motion was defeated, and the introduction of Local Examinations deferred, on the ground that the circumstances of Aberdeen, more especially its Bursary Competition, did not leave a sufficient constituency to operate upon ; only male candidates being then thought of. At the same meeting, an effort was made to obtain revocation of the decision of the Court for making the class of Natural History compulsory, seeing that the University Commissioners had allowed an option between it and Chemistry.

In October, 1862, John D. Milne moved his resolution on the removal of the University Library to Marischal College,—which was carried, against all amendments.

At the meeting in April, 1863, it was announced that the Court's deliverance on the removal of the University Library was indecisive, owing to an equality of votes, and the absence of the Rector. It was further attempted, at this meeting, to rescind the monopoly of the Natural History Class in the Arts curriculum, as against Chemistry,—the proposal being defeated by a large majority. This was one of the standing contentions between the two Colleges that

survived the Union ; but the Court's settlement remained to the last. Rev. J. Davidson of Inverurie gave a lengthy notice of a motion to open up the whole of the regulations of the University by a special inquiry as to their working.

At the meeting of the Council, in October, 1863, the final deliverance of the Court upon the Sites question was communicated, and was hostile to the motion for change ; a meeting being held at which the Rector attended and gave his deciding vote. The members favourable to the change of site were :—Mr. Thomson of Banchory, Dr. Kilgour, and Dr. Ogston ; while Mr. John Webster was then in full harmony and concurrence with the King's College Party on this point. Mr. Davidson's lengthy motion was proposed and carried by 33 to 28. Mr. Duguid Milne renewed his motion for an alteration in the Ordinance regulating the election of the Rector. This was carried, without a division. One of the numerous motions respecting the Library was made by Baillie Forbes, and carried.

At the meeting in April, 1864, the Court's deliverance upon Mr. Davidson's motion was given, and was adverse—on the ground of its covering too wide a field, and being premature. As to Mr. Milne's motion, the Court considered the change desirable, but thought it would involve an alteration in the Act. At this meeting, the *Senatus* reported their modified scheme for the Bursary Competition, which remained unchanged in essential particulars, and merely underwent a slight modification in later years by the introduction of outside subjects, known as the fancy subjects. Dr. Kilgour made a motion for an inferior degree, which might be called Bachelor in Arts, at the end of three years' attendance. The motion was carried, yet came to nothing.

At the meeting in October, 1864, the Council's Assessor had to be appointed. The King's College interest made a grand effort to secure a man of their own in place of

Kilgour, who was hostile ; and Rev. W. Mearns of Kinneff was proposed, and a poll demanded. As to Dr. Kilgour's motion for a B.A. degree, the deliverance of the Court was to refer it to the Senatus. Local Examinations were brought forward, on the motion of Alexander Forbes,—which motion was carried. Dr. George G. Brown again moved for publicity to the proceedings of the Court and the Senatus—by the admission of reporters,—which was carried by 12 to 10.

In April, 1865, the first business was the intimation that Rev. W. Mearns of Kinneff had obtained a majority of votes for the Assessorship. The defeat of Dr. Kilgour was explicable only by the superior exertions of the King's College interest ; there being plenty of strength on the other side to sweep away the small majority of Mearns. The effect, however, was, in conjunction with the next appointment of Chancellor's Assessor, Dr. Woodford, to make the King's College interest predominant for a number of years to come. On the question of the admission of reporters to the Court, a representation was read in favour of publishing the *res gestæ* of each meeting, reserving the right of admitting the reporters on special occasions. It appears that the Senatus had given an opinion to the Court unfavourable to the proposed B.A. degree, and the Court itself acquiesced. A motion was made by Rev. Mr. Mitchell, St. Fergus, and carried by 99 to 44, for the transference of the Library from King's to Marischal College. On a motion, not intimated on the roll of business, by Mr. Duguid Milne, to send a copy of the resolution to the Chancellor, the Lord Rector, and the Lords of the Treasury, the President declared it incompetent. The decision was supported by Rev. Mr. Hutchison, but was overruled. The Duke of Richmond presided, and, with the exception of a meeting quite recently, this meeting was the only one at which he ever appeared. The chief business was the University Court's representation anent the removal of the Library.

There was nothing of importance done at the meeting in April, 1866 ; but, at the October meeting of that year, Dr. George Brown gave notice of motion as to Local Examinations.

In April, 1867, a motion was brought forward by Professor Nicol, and carried, in favour of petitioning Parliament that, in any Reform Bill for Scotland, provision be made for the due representation of the Scottish Universities.

At the meeting in October, 1867, Mr. Grant Duff took the chair. Dr. Brown's motion on Local Examinations was carried.

At the meeting in April, 1868, it was announced that the Court approved of Parliamentary Representation for the Scottish Universities. There was also submitted the Court's deliverance on Local Examinations,—which was simply discouraging.

In October, 1868, Dr. Kilgour was re-elected Assessor. It fell to me to move that the Minutes of the General Council be printed,—an important step in the procedure of the body. The motion was unanimously agreed to. Mr. W. A. Hunter moved in favour of exchanging books at Marischal College,—which also was unanimously carried.

To the meeting in April, 1869, was submitted the Court's deliverance anent exchange of books,—the tenor of which was that the Court did not know how it could be carried out. Professor Geddes moved, anent the Compensation Grant, for additional grant from the Treasury,—which motion was carried. In a motion by Dr. G. G. Brown, reference was made to the large income of the University Library through the surplus of the General Fund, which had been, for several years, about £300 a year. This surplus has a history. It had been kept concealed, until the year of my curatorship of the Library, when I read it out in connexion with Professor Geddes's motion for obtaining an increase of the Parliamentary grant. The supposition was that the King's College Party had this

accumulation in their view, in case there should be no other means of securing an extension of the Library Buildings in Old Aberdeen. The Senatus, however, by sending a deputation to the Government, obtained a grant of £5000 for the erection ; while, at a later period, Lord Rosebery, as Rector, obtained the grant of £3000 for adding to the building. The accumulated funds were first turned to account, when the new Library was erected, in preparing the catalogue and in the purchase of books for making up blanks ; which operations did not exhaust the accumulated savings, so that, when the building addition was made to the South Wing at Marischal College, the Court was enabled to advance £2000 for the purchase of buildings in Longacre. This, of course, was incompetent, except as a loan for which interest ought to be given. The Court was divided on the legality ; but, being once carried, it remains and will remain without either repayment or interest.

One other motion, made at this meeting of the Council, indicative of the march of events, was that by Dr. David Brown, designed to secure the due representation of the Universities of Scotland on the Board of National Education, contemplated in the Education Bill then before the House of Lords. It was agreed to, unanimously.

In October, 1869, the Court transmitted to the Council its deliverance anent the Compensation Grant,—which was simply “a resolve to defer taking any steps in reference to the subject meantime”. The Rev. R. Stephen, of Renfrew, gave notice of a motion expressive of the opinion that the time had now come for amending the Universities Act, and conferring greater power on the University Councils.

CHAPTER VI.

SECOND HALF OF UNIVERSITY CAREER—1870-1880.

Winter Session, 1870-71, and Recess following.

THE year 1871 saw the opening of a number of new incidents and enterprises. In the first place, it became notable by Grote's death, on the 18th of June. The malady that removed him (Bright's disease of the kidney) manifested itself very early in the year. It affected his locomotive capabilities—he could neither walk nor ride without danger. Yet, his mental faculties remained intact, and he maintained an active correspondence on the subjects that interested him. I gave him a summary of Spencer's new edition; in acknowledging which, on the 18th of February, he described his ailment in terms that showed that it had now full possession of him. He also discussed Taine's book on *Intelligence*,—of which I had also made an abstract. In April, he was able to take part in filling up a vacancy in the Philosophy Examinership of the University of London. Towards the end of April, I arrived in London, and was painfully struck with his altered

appearance. In the end of May, I returned northward, taking leave of him for good ; it being quite apparent to himself and to others that his end was not far off. I had not reached home when the newspapers announced that his illness had taken a worse turn. On learning this, I returned to London, and found that he was in that stage when the poison of the disease affected his brain, producing delirium, and scarcely leaving him with the power of speech, while he was barely able to recognize known faces. The lingering stage endured nearly a fortnight.

After the funeral, I saw Mrs. Grote with reference to the publication of the MS. that he had left behind on Aristotle. This was the first thing to be looked to ; and I had to undertake the editing, in conjunction with Croom Robertson, who did all the laborious part of the work,—taking up his abode at Shere (Mrs. Grote's country house) for the sake of access to the needful books. I likewise read the MS., but did very little for the revision, until the proof-sheets came into my hands. Before the session commenced, I visited Mrs. Grote, while Robertson was still at work with her, so as to arrange for the publication. The book actually appeared in the following summer.

With regard to a biography, Mrs. Grote herself resolved to prepare what she called *Grote's Personal Life* ; leaving to me to give some account of his political and scholarly labours.

Mrs. Grote was occupied with the *Personal Life* until the beginning of 1873, when it appeared in the month of March. It was to precede the biographical details that fell to me to execute. These formed an introduction to a selection from his minor works,—published in October of the same year. The composition of the biographical part, as well as the selection and arrangement of the various papers, had been completed in 1872, or the beginning of 1873. I had to take up Grote's first efforts as an author, between 1820 and 1830; the topics being chiefly political. His pronounced Liberalism chimed in with the current of feeling and opinion that brought about the Reform Bill; and he was adopted, in 1832, as member of Parliament for the City of London. His Parliamentary appearances I had to set forth under the two heads of Speeches on the Ballot and Miscellaneous Speeches, presenting a full abstract of both. His retirement from Parliament led to the beginning of his final draft of the *History of Greece*, on which he was occupied till 1856. The twelve volumes had to be rapidly surveyed, together with a summary of the critical estimates given of the work at its different stages. This occupied forty pages. The *Plato* was then reviewed, on the plan of setting forth the author's characteristic handling. A much longer space had to be devoted to the *Aristotle*, from the still greater weight and fulness of the matter, albeit he had yet a considerable portion of the writings to undertake when his life was cut short. In a comparatively brief summary of his remaining public life, principal stress was laid upon his administrative activity in University College and the University of London. Of this last, he was the ruling spirit for a number of years, and his loss was irreparable.

Winter Session, 1871-72, and Recess following.

The year 1871 saw the meeting of the British Association in Edinburgh, which I attended. Here,

I encountered Dr. E. L. Youmans, the enterprising agent of Messrs. D. Appleton & Co., publishers, New York. He took the opportunity that the Association gave of promulgating the scheme of the *International Scientific Series*, with a view to obtaining suggestions and contributions from members of the Association. He had already formed a publishing alliance with Herbert Spencer, who, being present at this meeting, assisted him in the way of introduction to the members of the Association most likely to help him. I made the offer of a volume on Mind and Body, for which, by this time, I had a considerable accumulation of materials, and hoped to bring out without much delay. It appeared in 1872.

The alacrity I showed in undertaking this volume was, no doubt, owing to my various preparatory essays and discourses of previous years. Nearly the whole of the theoretical portion had already been provided in some form or other. The general thesis of the connexion of mind and body had been extended by endeavouring to assign modes of nervous action appropriate to the leading divisions of the mind. The whole subject had been simmering for a number of years. More particularly was the attempt made to deal with the connexion of mind and brain by numerical estimates; namely, by taking, on the one hand, the number of psychical situations, and, on the other hand, the nervous groupings rendered possible by the approximately assignable number of nerve cells and fibres.

The primary object of the work being to establish by conclusive evidence the thorough-going connexion of mind

and brain (senses and muscles being co-operating factors), the earlier chapters were devoted to arguing the position. Next came the hypothetical speculations as to the connexion of bodily functions with the Feelings, the Will, and the Intellect respectively. The chief novelty consisted in the treatment of the intellect upon the method of enumeration just referred to. One circumstance could be ascertained and established as growing out of the very nature of our mental products. The difference between one product and another lay in a certain primary element, *A*, being united at one time with *B*, at another time with *C*, and so on ; while the embodiment of these in the nervous framework required nervous groupings corresponding to each, which groupings had to be kept distinct in the brain as they were in consciousness. This is one form of psychical difference. The other form, difference of degree of the same element, might be shown to be resolvable into difference of grouping also. Proceeding on those two modes of mental distinction, a hypothetical enumeration of psychical elements was attempted, and this was compared with the possibilities of nervous grouping in the cells and fibres of the brain.

The hypothesis was a legitimate one ; but subsequent reflection led to the belief that the number of psychical elements, although run up to hundreds of thousands, was still inadequate.

A third of the volume was occupied with the historical growth of the prevailing notions respecting mind and body. In this, I had the assistance of G. Croom Robertson in the portion relating to the Fathers of the Church and the Scholastics, and also to the recent German materialists. Since by far the most important of the Middle Age Churchmen, in giving the prevailing doctrine its final shape, was Thomas Aquinas, I obtained from my class assistant at the time, Mr. J. B. Duncan, a careful analysis of the passages in Aquinas, which set forth his arguments and conclusions.

This historical survey was an essential part of the main argument; being intended to show the thoroughly unscientific character of the various steps whereby the common notion was arrived at.

It was necessary to classify the various alternative suppositions as to One or Two Substances, and to maintain the essential phenomenal distinctness of the psychical and the physical, while upholding the indissoluble union of the two. The expounders of the doctrine of the Trinity had formulated the mode of expressing the mystical union that we find in the Athanasian creed, as "not confounding the persons nor dividing the substance,"—a not inapt rendering of the union of mind and body, given as the conclusion of the argumentative and historical treatment. It was at Grote's suggestion that I made this application.

The work had a wide circulation in this country, in America, and on the Continent, through the translations effected by the publishers of the Series. What amount of influence it exercised in modifying the spiritualistic doctrine of the soul, as finally adjusted by Aquinas and adopted by the Christian Church at large, I have no precise means of determining. I am not aware that any effective reply has ever been made to its arguments. Indeed, so far as I know, a refutation has been seldom attempted.

In the same year was planned *A First English Grammar*, which, with the Key, was ready in the year following.

Applications had frequently been made to induce me to prepare a first or introductory grammar to pave the way to the higher. This was carried out towards the end of 1871, on the plan and with the views indicated in the preface. The speciality of the work was to provide a series of explanations and exercises of a purely logical character to be gone through in advance of the proper grammatical

topics. How far teachers in using the grammar carried the pupils through this preliminary part, I never exactly ascertained. It was quite possible to dispense with it and accept the definitions of the parts of speech and so on, explaining these in the usual fashion of all grammars. To ease the teacher's labour and increase the grammatical discipline, a key was drawn up exclusively by Minto, and grammar and key were brought out together, and at once reproduced in America through Henry Holt & Co. of New York. Publication took place in January, 1872.

Winter Session, 1872-73, and Recess following.

The first months of 1873 were associated with the final stages of *Mind and Body* and the forwarding of *Grote's Minor Works*. In the month of March, occurred the first election of a School Board in Aberdeen, under Lord Young's Education Act. The contest turned almost exclusively on the point of religious education, and became very hot. The religious sects concurred in adopting a set of candidates pledged to the maintenance of religious teaching; while, to secure the support of the Episcopalians, they agreed to drop the Shorter Catechism. The secular party put forward six candidates, who were all defeated with the exception of myself. I was able to attend only the first meeting before going abroad, and was the proposer of Dr. Pirie as chairman.

Immediately afterwards, we set out for London. During a few days' stay there, I saw Mill once at

his rooms in Albert Mansions, and, again, at a reception given by Lord and Lady Amberley. Leaving London, we started for Italy ; going through Paris and the Mont Cenis Tunnel to Turin, thence to Genoa, and by the Apennines to Spezzia. The next visit was to Florence, where we stayed a week. Besides the usual sights of the place, we had the opportunity of seeing the anatomical models in wax that had been manufactured under the auspices of the Grand Duke of Tuscany. Thence we went to Bologna, Padua, and Venice—which last was reached on Wednesday, the 7th of May. On Saturday, I called for letters at the Post Office and was blocked by the difficulty of not producing a passport. I was told there were several telegrams ; but they were refused, and only got through being delivered at the hotel. These were all forwarded from London by Minto, and contained successively the illness and the death of Mill ; the news, of course, having been sent from Avignon to London. I at once resolved to make our way homewards, and take Avignon on the route, by Milan and Nice. Spending a night at Nice, I talked with Dr. Gurney, who had attended Mill. When we reached Avignon, we called at Mill's cottage and saw Miss Helen Taylor. We also called on the physician who had attended Mill, and on the Protestant pastor who was present at the funeral and

gave a prayer. Finally, proceeding by Lyons to Paris, we saw Madame Digweed, Mill's second surviving sister.

The French Assembly was then meeting at Versailles, in the theatre of the great palace ; and there, we were introduced by M. Littré to a sitting. He was at that time Deputy of the Seine. M. Thiers, President of the Republic, sat among the members in the second front bench : his deposition followed the same week.

Arriving in London, in the beginning of June, I took the chair at a soiree given at James Heywood's to discuss the proposal for a testimonial to Mill. This had been mooted by Arthur Arnold, and his forwardness gave umbrage to Mill's more intimate friends ; with the result that my business as chairman was to soothe the irritation expressed by various individuals on that point. Still, being once mooted, it seemed on the whole advisable to proceed with the proposal ; and a special meeting for the purpose took place in Willis's rooms, Roebuck being in the chair. In consequence, however, of some disagreeable remarks with reference to Arnold's forwardness, Roebuck withdrew his name from the Committee and took no further share in the movement.

I returned to Aberdeen, in the end of June, and began to take part in the School Board proceedings.

Professor Black, who was on the Board, was chiefly instrumental in organizing the schools, partly by adopting existing schools and partly by commencing the erection of new ones. Being appointed Chairman of the Grammar School Committee, I had the principal share in trying to reform its management; but the attempt was abortive, for want of funds. I introduced one motion, and only one, on the subject of secular teaching, with the solitary support of the Roman Catholic priest.

This year saw the commencement of the revision of the third edition of *The Emotions and the Will*.

Darwin's *Expression of the Emotions* came out in the Autumn of 1872, and I immediately perused and analyzed it. This was followed by a very full review of the whole which was put into print and appended to the current (third) edition of the *Senses*. Darwin had gone carefully into the minutest details of expression, comparing the modes throughout the accessible races of mankind.

The problem herein presented is somewhat complex, consisting of matters that are fairly within our range, and others that are beyond our reach; it being a necessary clearance of our way to separate the one from the other. Darwin has, seemingly, failed to draw the proper line—as I wish to show.

The accessible part of the inquiry consists in assigning to our various emotional states—pleasurable and painful—the prevailing modes of manifestation or expression. So great is the general uniformity throughout mankind, that this attempt is fairly within our province—indeed, it is roughly appreciated and understood by every one, and the

knowledge is acted on for a variety of purposes. When a scientific treatment is superadded, it means a more careful analysis of our emotional states, on the one hand, and of our organs of expression, on the other, together with a precise rendering of their characteristic modes. We may, moreover, endeavour to generalize—to reduce to general laws—the different manifestations, showing a common bond running through the great variety of details. This applies not merely to pleasures and pains, as such, but to emotional forms that have distinctive characters—such as the exultation of victory, the stare of astonishment, the prostration of fear, and so on. General laws of mind and body are sought with a view to comprehend the leading kinds of emotion.

While Darwin has applied successfully this form of legitimate research, he has ventured a step farther, and involved himself in speculations that pass beyond our grasp. This is more particularly shown in his endeavouring to account for the characteristic movements of the eyes and mouth in expressing emotional states. He would fain ascertain how these peculiar movements first began; what were the generating causes of the opposing attitudes of the mouth in pleasure and in pain, in love and in anger. The hypothesis framed by him for this end must be pronounced a total failure. It halts in the special point, if in no other, that it presumes to give priority to our volitional framework over emotional expression strictly so called. We assume, and Darwin would admit as much, that the volitional and the emotional movements are distinct facts of our constitution; while to say which was prior, which could be given as the producing cause of the other, is entirely beyond us. It is one of those problems of beginnings that we are never likely to solve. What Darwin endeavours to account for, in the characteristic movements and attitudes of the face, must be simply assumed; its origin being beyond our power to reach.

It was on revising the criticism appended to the *Senses* in 1873, for the edition of 1894, that the illegitimacy of Darwin's bolder speculations became more and more apparent. Our attitude now to such matters is of the same nature as the attempt to account for the mental development of infancy. A certain amount of the absolutely inscrutable has to be taken into account, and, if possible, estimated, so as to draw the line between what is really primitive and what is taken on from the exercise of the organs and contact with the world of inanimate nature and living beings. This is, evidently, the problem of infancy, in its two essentially distinct parts. It is the second that is within our reach—we can attack it by actual observations ; the other is pure inference from it as a datum.

The criticism in question overhauled Darwin's positions point by point, and no material change was made upon it in the reprint. Darwin himself admitted the general fairness of the review, and his letter in reply is as follows :—

“ DOWN, BECKENHAM, KENT,
“ 9th Oct., 1873.

“ MY DEAR SIR,

“ I am particularly obliged to you for having sent me your essay. Your criticisms are all written in a quite fair spirit, and indeed no one who knows you or your works would expect anything else. What you say about the vagueness of what I have called the direct action of the nervous system is perfectly just : I felt it so at the time, and even more of late. I confess that I have never been able fully to grasp your principle of spontaneity, as well as some other of your points, so as to apply them to special cases. But as we look at everything from different points of view, it is not likely that we should agree closely.

“ I have been greatly pleased by what you say about the crying expression and about blushing. Did you read a review in a late *Edin.* ? It was magnificently contemptuous towards myself and many others.

“ I retain a very pleasant recollection of our sojourn together at that delightful place, Moor Park.

“ With my renewed thanks,

“ I remain, my dear sir,

“ Yours sincerely,

“ CH. DARWIN.”

In addition to works already mentioned as planned in the preceding year and completed in the present, a reprint was made of the *Higher English Grammar*, improved in typography and with amendments, more especially in the parts on Derivation,—which were provided chiefly by Mr. A. F. Murison.

The last and finishing effort in connexion with grammar was the *Companion to the Higher Grammar*, prepared and put into shape in session 1873-74 and the following summer ; being published in September, 1874. The materials for it had been necessarily accumulating in the teaching of the English class, and during the preparation of the other grammatical text-books.

The preface fully expresses the plan of the work. Its leading objects may be stated to be to indicate and exemplify special points in the Higher Grammar,—to select, for special emphasis and elucidation, the portions of grammar most directly concerned in composition. The paramount importance of order of words is especially dwelt upon. It had always seemed to me to be the weakness of the much-vaunted “ Analysis of Sentences ” to put out of sight the proper placing of the sentence elements ; and I urged

strongly the great value of a discipline on this matter by itself. Although the logical portions of grammar were re-touched, my attention was always concentrated on such definitions, classifications, and rules as had a true grammatical bearing.

Besides my own collections, I received valuable contributions in the way of examples from Mr. A. F. Murison. In the elaborating of the illustrative passages, I obtained aid from my class assistant, Mr. J. B. Duncan, and from Mr. W. L. Davidson of Bourtie.

Under Order of Words, more especially, the work bridged the transition from grammar to rhetoric.

Winter Session, 1873-74, and Recess following.

In the month of February, 1874, we had staying with us Professor Huxley, who had come down for his address as Lord Rector; to which office he had been elected in 1872.

On the 2nd of March, Dr. Arnott died. He named as executors, besides his wife, Dr. Alfred Taylor and myself. This implied the preparation of a biography, which devolved upon me, and the editing of a new edition of the *Physics*, in which both Dr. Taylor and myself took a part; he re-writing the Electricity and I revising the Astronomy. We had also to engage someone to re-write the mechanical portions, in which, besides some mistakes, there were important blanks. For this, I employed Mr. John Cook, Professor Thomson's assistant, who was competent for the work, but was very dilatory in

finishing what he had undertaken ; the consequence being that Mrs. Arnott was on her deathbed when she saw a copy, and was very much disappointed at the delay.

In revising the *Astronomy*, I had to keep to Dr. Arnott's own method, supplying the recent discoveries, and, in particular, compiling from Lockyer an account of the discoveries of spectrum analysis.

In the biography, I made use of all the materials at my disposal ; the effect being that it was too long for publication in the Royal Society's *Transactions*, as well as for being prefixed to the new edition of the *Physics*. Accordingly, it was not printed *in extenso*, until I had given it as a contribution to the Aberdeen Philosophical Society, and it was included in the first volume of its *Transactions*.

These occupations interrupted the revision of the *Emotions*,—to which, however, the larger part of this year had to be devoted.

During the interval between the second and third editions (1865-1875), much cogitation had been bestowed upon many of the topics. First of all, I had been anxious to formulate the subject of measuring degree in our emotional states ; it being self-evident that to renounce this effort as hopeless was another way of saying that Psychology could give no help in adjusting human aims or in making preferences in the search for happiness. The upshot of these protracted cogitations appeared in the introductory chapter (pp. 23-42). I have since had occasion to dilate upon the same topic in criticizing writers on Ethics in *Mind*.

An entirely new chapter is occupied with Evolution, as bearing on the mind. While Spencer had been devoting his energies to the psychological aspects of Evolution, as well as to its more purely biological aspects, I had hitherto refrained from making any reference to it. The study now bestowed on the whole question was embodied in this chapter ; and I have not since been able to make any essential alteration in the positions there taken up. It so happened that the facilities and aids unquestionably afforded by this great hypothesis suffer abatements, owing to its difficulties and want of evidence. Still, it can never now be left out of sight in whatever speculations we may indulge as to the beginnings or prior stages of the vast structure of organized beings.

The nature of Sympathy, as the source of disinterested conduct, had to be reviewed ; and, in so doing, the former position, taken up and expounded both in *The Senses and the Intellect* (under fixed Idea), and in the *Emotions*, which made Sympathy a purely intellectual growth, was abandoned. The need of a further element of an emotional kind was strongly urged, and was supplied by the hypothesis of a gregarious origin in the past history of the races of animals and man. It was also necessary to vindicate, against various ethical authorities, the existence of purely disinterested motives, apart from all roundabout selfish considerations,—a point vital in the present stage of ethical controversy.

The vast and difficult subject of the Æsthetic Emotions was subjected to a considerable amount of revision. As regards Music, I adopted some valuable suggestions from Mr. Sully, which seemed to be in the right direction. A good deal has been done on the subject since, by some of the German writers, and by Edmund Gurney in his work on Sound. A variety of other topics had been brought into a clearer light, in consequence of the frequent references made in the course of the instructions on Rhetoric, in the

English class. The theory of Laughter or the Ludicrous, together with Humour, was still left imperfect, and was not finally adjusted until the revised edition of the *Rhetoric*,—to which I have now nothing essentially new to add.

As regards the Ethical Emotions, or the Moral Sense, there was not a great deal to change ; so much pains having already been given to the subject, both in the previous editions and in the *Manual of Moral Science*. An important insertion was made to meet the objection urged against the doctrine of Utility—that it supplies no motive but what is self-regarding, and, therefore, is not an adequate foundation of morals. I still retained the mode of regarding moral rules as social institutions—the result of human initiation, and subject to abrogation by human authority.

In the preliminary chapters on the Will, the primitive elements of volition (*viz.*, SPONTANEITY, and the link of FEELING and ACTION) were reproduced with a supplementary note upon the bearing of the doctrine of Evolution on my mode of stating the fundamental postulates. I made a comparison between my own language on both points and the language of Spencer and Darwin respectively, by way of showing that my wording could not be dispensed with. The succeeding chapters, entitled "Growth of Voluntary Power," were retained with little change. A criticism was made of some of Mr. Abbot's observations on the acquirement of the voluntary control of the eyes. The previous discussion on the growth of Imitation was continued with little change : it was not till the fourth edition of the *Senses* that further admissions were made as to the instinctive foundations of our imitative movements.

The very difficult topic of the Control of Feelings and Thoughts was added to. An attempt was made to reduce this kind of control to a modification of the activity of our voluntary muscles, as seen in the full actuality. A great difficulty occurs in regard to the special form of control,

consisting of changing attention in the case where there is no spatial transition—as in passing from one instrument to another in the mixture of a full band.

The subject of Desire has been a standing topic of polemic discussion. For one thing, it has been disputed whether in Desire we have always in view a pleasure or a pain. A discussion on this point was introduced, with more especial reference to Mr. Sidgwick's position as expressed in his *Methods of Ethics*. On this controversy, however, the last has not been said; although, for my own part, I have nothing further to advance on the question. There will always be a difficulty of language, if nothing else, in defining the precise attitude of the mind in Desire. There is a complication of the intellectual, the emotional, and the volitional elements of our constitution; and the varying proportions of these will make considerable variations in the character of the state.

The chapter entitled "Moral Habits" has only one emendation, which consists in rendering precise Butler's account of Habit, as partly a deadening and partly a heightening influence in emotion.

The chapter on the important topics—PRUDENCE, DUTY, MORAL INABILITY—remains unchanged. Great offence has been taken at the treatment of the concluding topic; but I have seen nothing in the objections to require answering.

On the grand polemic relating to LIBERTY and NECESSITY, a large portion has been re-written,—chiefly on the argument from Consciousness, which has been stated afresh by Mr. Sidgwick. A portion of the new matter is devoted to the arguments in the *Dublin Review* of Dr. W. G. Ward, with whom I had a subsequent correspondence, and further discussions in the pages of *Mind*,—he replying in the *Dublin Review*.

BELIEF was subjected to a thorough revision, being almost entirely re-written. The position of Primitive Credulity was more thoroughly expounded; and I should

not now find any important modification to introduce into the treatment of the entire subject.

The closing section on CONSCIOUSNESS in general received some important emendations. Adhering to the original plan of reserving to the very end of the entire exposition of the mind the various subtle disquisitions on matters belonging to the start and definition of Psychology, I revised and remodelled all that related to the distinction of Subject and Object, as well as the partition of the mind under the three fundamentals constituting the definition of mind. In adopting the thorough-going principle of Relativity, as first stated by Hobbes, I made a mistake in applying the principle to qualitative differences, as well as to variations of the same quality. This point was well illustrated by Dr. James Ward, in his article "Psychology," in the *Encyclopædia Britannica*. That the impression made by a colour as red is affected by comparison or contrast with other colours is so far true ; but the exact influence of the comparison is limited in amount and can be settled only by observation of the fact.

The analysis of Subject and Object was re-stated, by reviewing that of Herbert Spencer ; the difference being principally in the detail. The proper metaphysical issue was purposely kept apart from the psychological.

The first few pages of the section, devoted to the received meanings of Consciousness, underwent no change. I should now be disposed to make one addition to the statement of these meanings, by advocating the propriety of confining the term to the strict meaning of present or actual consciousness. The motives for this change, and the advantages arising from it, are given in an article in *Mind*, "Definition and Problems of Consciousness" (vol. iii., N.S., No. 11).

While in London, in summer, I talked over with Croom Robertson the project of a Philosophical

journal, into which he entered cordially, and consented to act as editor. I also mentioned it to Herbert Spencer, who highly approved of it ; and, further, I went down to Cambridge and saw the two most prominent teachers of Philosophy there, Messrs. Venn and Sidgwick, who promised their co-operation. A great deal had to be done in arranging the plan and finding a publisher, as well as in corresponding with expected contributors over the country ; but there were hopes of bringing it out sometime in 1875. The ultimate resolution was to start in January, 1876.

Winter Session, 1874-75, and Recess following.

The chief part of the spring and summer must have been occupied in preparing and carrying through the press the third edition of the *Emotions* (November, 1875).

In the latter half of the same year, the *Biography of James Mill* was seriously entered upon. In October, I went to Cortachy Castle, on the invitation of Lady Airlie, to interrogate an old man who, being a relative, had known James Mill's family. A still more fruitful visit was made to Mr. Alexander Taylor of Cushnie, near Fordoun, who was one of the Barclay family, with whom James Mill's father, as well as himself, was in intimate relationship. I





Professor Bacon in 1870
FROM A CHALK DRAWING BY ARTHUR CLYNE

made an excursion to Montrose to see another of the Barclay connexion, Mrs. Christie, who was old enough to remember James Mill in person, and who heard him preach in the Parish Church. In Edinburgh, in the summer, I had received important help from David Laing, of the Signet Library, especially in reference to Sir John Stuart, Mill's early patron, whom he personally recollected.

Winter Session, 1875-76, and Recess following.

The first portion of the biography, extending to 1803, was composed as an article for the first number of *Mind*.

To the same number, I contributed a polemic with G. H. Lewes on the “Postulates of Experience”; it being contended, in opposition to Lewes—who held that the Uniformity of Nature was an identical proposition—that it was a veritable conjunction of subject and predicate, or Synthetic Judgment, and that it was a primary assumption that could not be resolved or transcended.

A further contribution to the number was an abstract of Spencer's *Sociology* (Parts I.-V.). The article was almost purely expository.

Among the MSS. left by Grote, a number of fragments of Ethical discussion were brought to light, which ought properly to have been included

in the posthumous *Aristotle*, had they been discovered in time. They were considered sufficiently interesting to be published in a separate volume. A notice of the volume formed my final contribution to the January number (1876).

The preparations for bringing out *Mind* were carried on through 1875 ; and it was considered expedient that the actual start of the first number should be January, 1876.

Henry Sidgwick's work, entitled *Methods of Ethics*, came out in the end of 1874 ; and, having made a careful perusal of it, I was greatly impressed with its ability and conclusiveness as a polemic directed against the Intuitionists. Indeed, in my judgment, no such thorough-going refutation had hitherto appeared ; and the doctrine of Utility received a corresponding amount of support. In the second number of *Mind* (April, 1876), I gave a minute and critical analysis of the entire work.

While commending the treatment as a whole, I had to make a careful examination of the author's exaggerated view of the difficulties of estimating Pleasures and Pains, with a view to ethical decisions. After reciting the various difficulties adduced in connexion with hedonistic calculation, I had to indicate some of the palliatives essential to clear the doctrine of utility from the charge of ineptitude as a guide to conduct. The topic was only partially exhausted, and came to be resumed in a future article dealing principally with the work of Leslie Stephen, "The Science of Ethics" (*Mind*, vol. viii., p. 48).

Exception had to be taken to the author's endeavour to bring self-regard and regard to others under one principle, and to reconcile the miseries of mankind with some principle of moral order. For my own part, I could not then see, and I do not now see, any foundation for the restraints imposed upon mankind by ethical sanctions, other than the appeal to universal suffrage. The individual voter may derive his opinion from venerated authorities, or in any other way that he pleases; but his vote, going along with the collective suffrage of mankind, cannot be transcended by any possible contrivance.

Before the publication of the article, I had written privately to Mr. Sidgwick expressing my admiration of his work and indicating the main objections adduced in the article. I had the following note from him in reply:—

"TRINITY COLLEGE, CAMBRIDGE, 4th March.

"DEAR PROFESSOR BAIN,

"I did not mean to be so long before answering your kind letter about my book. It gave me more pleasure than any other which I received. There is no one living to whom I owe more instruction in philosophy than I do to you: and that you should be able to speak so favourably of my work—with whatever allowance for the *per contra* which your kindness did not allow you to put down—seems to me as much 'success' as I ever desired. Whatever notice you may find it convenient to give to any part of my work in the new edition of your ethical [treatise] will be extremely interesting to me: indeed I shall wait for your new edition as an occasion for reviewing the whole subject.

"I had some idea of writing to you on the points which you notice as disagreeing with my views: indeed this is why my answer has been so long delayed. But on the whole I have determined not to do so at present. The chief *personal* advantage that I have hoped from the publication of my views, is the possibility of getting a step

further, if I can only get what I have written well criticized. So I will not impair this advantage by identifying myself too much with anything that I have expressed. It represents the best conclusion I could come to at the time : but I shall be glad to turn to it again after a few months, when I have got whatever criticism I can get on it, and consider the matter again with a perfectly unbiassed judgment.

“The parts of my book that I find most objected to are the chapters on Pleasure and Desire and the concluding section. The latter I wrote at the very last moment in a fit of candour. I felt it was out of harmony with the rest of the book : and perhaps it would have been better not to have written it : but I was reluctant to appear before the world with the air of having effected a more complete synthesis than I knew myself to have done. As regards Pleasure and Desire, it is an old hobby of mine to rehabilitate Butler : but now that I find I can persuade no one I begin to suspect my arguments. I shall take occasion to reconsider the matter when your new edition comes out : I do not promise *not* to be converted, but if I am not, I will try and defend my position further in *Mind*.

“Believe me,

“Yours very truly,

“HENRY SIDGWICK.”

I had prepared, before the close of the College session, two notices to appear in the July number of *Mind*.

The first of these (p. 393) was a review of P. Proctor Alexander on *Moral Causation*.

The work was occasioned by the portion of Mill's *Hamilton* that dealt with the Free Will controversy. Mr. Alexander had attacked Mill's handling, and had drawn

forth a reply in the third edition of the *Hamilton*. To this reply he gave a rejoinder, and complained that, in Mill's fourth edition, it was ignored. The chief stress of *my* article lay in noticing the inappropriateness of the phraseology that even Mill indulged in, when criticizing Hamilton. Next in importance were the strictures called forth by mixing Free Will and Necessity with the theory of punishment,—which in every aspect needed to be kept completely apart.

The other note (pp. 429-431) was a discussion on the very vexed question of the gratification arising from the infliction of pain. It was occasioned by a note by Mr. Sully in the April number (p. 285), and went over all the different modes of resolving the pleasure—the feeling of power, the riddance from fear, and a species of sensual enjoyment not resolvable into either. It was a step in the investigation of the problem, and the conclusions arrived at were subsequently reviewed and modified, more especially in the controversy with Mr. Bradley (*Mind*, vol. viii., pp. 415 and 562). The positions there maintained were reproduced for literary applications in the re-modelled *Rhetoric* (Part II., "Emotional Qualities of Style," p. 77).

Leaving Aberdeen on the last day of the session, my wife and I went direct to London, and thence to Paris *en route* for Italy ; the object being to see Rome and Naples before the heat of midsummer. We arrived at Rome on the 10th April, and, on the 20th, left for Naples,—of course, visiting Pompeii

and Vesuvius, as well as the interesting objects in Naples itself, including the Museum, which was enriched by objects taken from Pompeii and the Solfatara,—this, although on a small scale, being our closest view of volcanic action. We also achieved an excursion to Paestum. After a week at Naples, we returned to Rome and spent another week in making the round of objects of interest. An excursion to Trefontana, the place of martyrdom of St. Paul, involving a long exposure in an open vehicle after sunset (one of the things especially forbidden), may have been the occasion of an attack of Roman fever, which my wife experienced before leaving Rome, and which seemed to leave permanent bad consequences. We made the return by Florence, Milan, and Turin; from whence, we went, through France, to Paris. At Paris, I called on M. Ribot, who had started the *Revue Philosophique* at the same time as *Mind*. We then proceeded to London, where my wife had an attack of jaundice, which seemed to have supervened upon the Roman fever. Before leaving London, I paid a visit to Grant Duff at Knebworth, which he had rented from Lord Lytton—an interesting house in various ways. Leaving London on the 22nd June, we made our way home, in the beginning of July. I had an application from the Edinburgh School Board to examine the High School in the various branches

of English, and stayed with Dr. Donaldson for the purpose. Before the commencement of the session, I had to go to Edinburgh to give evidence at the Universities Commission.

During Summer and Autumn, the *James Mill Biography* was pushed forward—chiefly by the help of letters and documents supplied by Harriet Mill, whom I visited while in London. The second instalment came out in the October number of *Mind*, and was my only contribution to that number. I continued working at the subject, and gave the final article to the October number of the following year. These three articles became the basis of the complete biography, as published in January, 1882.

Three interesting documents bearing upon the publication of *Mind* were received from Helmholtz, Ribot, and M. P. W. Boulton.

In the course of this year, a commencement was made in the preparation of my volume on *Education*, in the International Scientific Series. The first portion that saw the light was given in the January number of *Mind* for 1877. It was entitled "Education as a Science," and corresponded to the introductory chapter of the volume itself.

Winter Session, 1876-77, and Recess following.

My chief occupation for the year 1877 was the work on *Education* and the finishing of the *James*

Mill Biography. At the end of the session, we went, by Manchester and Cheltenham, to Clifton,—where we stayed for three weeks. I saw Miss Carpenter in Bristol, and went over her Reformatory for Girls. She was to have visited us in Aberdeen for the Social Science Congress, but was suddenly cut off in the interval.

In the Autumn of 1876, I had been invited by the Metaphysical Society of Edinburgh to deliver an address some time in the course of the ensuing session. The address was given in the end of March, 1877, and appears in my *Practical Essays*. The point more especially brought out was the limitations of debate as a means of furthering the ascertainment of truth.

It so happened that the *Contemporary Review* was then passing through a crisis, due to the rivalry of the *Nineteenth Century*, under James Knowles. I had a communication from Strahan to the effect that the *Contemporary* was undergoing a calumnious attack by its being represented as henceforth committed to a reactionary pietism. He pressed me to furnish an article for the April number, and readily accepted the Metaphysical address, which was actually delivered from the proof-sheets.

When we went to London, on the advice of Mrs. Grote, I had a consultation with Dr. Hermann as

to the best treatment for congestion of the liver. His recommendation was to take the waters of Homburg. Accordingly, we left for the Continent on the 9th June, arriving at Homburg on the 12th. A month was spent here, during which there were two outbursts of extreme heat ; but, otherwise, the place was sufficiently enjoyable, and was probably advantageous.

While at Homburg, I had a communication from Bradlaugh, whose trial, in company with Mrs. Besant, for the publication of Knoultin's *Fruits of Philosophy*, was then pending. He desired me to appear as a witness, and to represent the political economy bearings of the inculcated doctrines ; reminding me that it was in his power to subpoena any one that he might consider suited to his plan of defence. My being so far from London made an appearance impracticable. Otherwise, my answer was that I could not come forward as an authority in political economy, but that, had I been in London, I would have placed myself at the disposal of his counsel to render any service that was in my power. The trial was finished when I was still in Homburg, and the sentence pronounced. After returning home, in July, I made a run to Ballater and Braemar, and effected an excursion to the Wells of Dee.

Towards the end of September, occurred the meeting of the Social Science Congress in Aber-

deen. We had as guests Edwin Chadwick, Sir Alexander Grant, and Mr. Parker, the member of Parliament for Perth. I undertook to prepare a paper on the merits and defects of the system of competitive examination for public appointments. As a preliminary, I drew up a history of the introduction of the competitive system of examinations, which was printed and circulated among the members of the Association. The paper actually read criticized the whole system. In *Practical Essays*, an abstract of the historical account is given, along with the paper as read.

On the occasion of my second visit to London this year—which took place in October—I had a consultation with Dr. Andrew Clark on the state of my health. I had been experiencing, for some time previously, feelings of discomfort and loss of muscular strength. Clark recommended a change of regimen, and also advised me to resign my Chair, as soon as I found it convenient.

In the month of January, occurred the sudden death of my namesake, the well-known electrician. The name was telegraphed to America, and, in various quarters, I was mistaken for the electrician. Before the correction could be made, obituary paragraphs appeared in various American papers, and Appleton's editor, Dr. Youmans, with whom I had been long in correspondence, had prepared an elabo-

rate notice, which, however, was soon rendered unnecessary.

In the April number of *Mind*, I contributed a note upon "The Meaning of 'Existence' and Descartes' 'Cogito'"; the purpose being to discuss fully the employment of the term Existence, and to show that it was a purely factitious designation, there being some other predicate always underlying. The position had already been taken up in the *Logic*, and was here fully argued out.

In the October number, I had a contribution on James Sully's extremely elaborate and exhaustive treatise on *Pessimism*. The work is analyzed in detail, and its merits indicated. The chief point in debate is the possibility of a scientific treatment of Pleasure and Pain, which the author partly disclaims as impracticable, and partly vindicates in his own treatment. He plainly shows that Psychology, even in the present, is a help to the solution of the great problem at issue, while it may be still further cultivated so as to become more fruitful in the same direction.

Winter Session, 1877-78, and Recess following.

In the January number of *Mind* (1878), I discussed and overhauled Mill's chapter, entitled "Functions and Value of the Syllogism," — by

which I had been so far misled as to adopt its conclusions in the *Deductive Logic*. The exact relations of Syllogism to Deduction proper are set forth in the discussion, to the best of my judgment ; and I have seen no reason to depart from the conclusions arrived at. I am now convinced that the term Deductive Logic is really a misnomer for the portion of Logic mainly occupied by Syllogism. For this part, various other names have been suggested, all more or less suitable,—such as “ Formal ” Logic (De Morgan), “ Symbolic ” Logic (Venn). All the various designations have a certain propriety ; but my preference, on the whole, would be for De Morgan’s.

This year saw the completion of the volume on *Education as a Science*. Contributions were also made to the July and October numbers of *Mind*, embracing the Psychology of Motives. The volume itself appeared in November.

On the 19th of June, I delivered an address at the College of Preceptors on the “ Errors in Connexion with the Discipline of the Imagination,”—which was published in the *Educational Times*.

The same year, a society was formed in London for the development of the Science of Education. I seem to have had no special part in it at the outset ; but, in subsequent years, I had a large share in its transactions.

In November of the same year, occurred the death of Mrs. Grote,—when, according to Mr. Grote's will, I became the possessor of his copy-rights.

Winter Session, 1878-79, and Recess following.

In *Mind* for 1879 were published, in three successive numbers (April to October), my papers on the biography of John Mill. The first, embracing his early life, was grounded on materials supplied by Harriet Mill, from documents in possession of the family. The two subsequent articles were partly biographical, but still more critical,—on all which my knowledge was first hand.

For the October number, I prepared a notice of Herbert Spencer's *Data of Ethics*; freely commenting on his Evolution point of view, and specially commending the two chapters "Egoism *versus* Altruism" and "Altruism *versus* Egoism". Perhaps, no such thorough exposure of the popular exaggerations of altruistic duty had ever been presented to the world. From this time forward, the Ethics of Evolution occupied a place in the standing controversy respecting the true foundation of an ethical system. Spencer's position was steadily controverted by Sidgwick in the interest of Utility, while it was subsequently embraced by Leslie Stephen in his work published two years later.

The work of the summer included an address to the newly-formed Education Society, of which I was chosen President for the year. On the publication of the volume on *Education*, the Society had arranged a series of discussions at the meetings of the year, beginning in March and ending in December ; a topic being assigned for each meeting. This had gone on during March, April, and May, when, on Monday, the 26th May, it fell to me to give an address as president. The subject chosen was "The Possibility and the Limits of a Science of Education". For practical purposes, education was defined as the work of the schoolmaster,—which was defended against obvious objections. An inquiry was entered into as to the constituents and sources of a science of education,—which were indicated and illustrated *seriatim*.

It so happened that I had arranged to lead a discussion at the College of Preceptors on the interminable Classical question. At a meeting on 11th June,—Alex. J. Ellis in the chair,—I undertook to counter-argue more especially the necessity and propriety of combining both Latin and Greek in our educational system ; the contention being that everything in the way of discipline that could be alleged in favour of the classical training could be obtained on the groundwork of Latin. Mr. Mason replied by dwelling upon the vast importance of the

disciplinary value of Latin as an inflected language. It was in vain that the chairman endeavoured to remind him that the question in debate was, not as to the worth of one of the languages, but as to the necessity of combining the two. It was equally in vain to remind another speaker who argued for the knowledge of Greek, as giving the meaning of a large technical vocabulary, that such knowledge actually misled the student, instead of helping him.

In the beginning of this year, occurred the death of G. H. Lewes ; and, in March, I had an interesting letter from "George Eliot," full of the pathos of the event, and adverting to a hope, expressed by me, that Lewes had supplied some recollections of John Mill at the time when they were in most intimate relations,—that is, when Lewes was beginning his literary career, and deriving assistance, in the way of suggestion and otherwise, from his intercourse with Mill.

It so happened that James Sully had been entrusted by her with the drawing up of a sketch of Lewes for publication in magazine form. In the month of August, Sully paid me a visit in Aberdeen ; and we went together on an excursion to Braemar, making the ascent of Lochnagar and Ben Macdhui. He had then in hand the Lewes biography, and showed me the proofs of his work.

A fourth and finishing article on John Mill was

prepared for publication in the January (1880) number of *Mind*; being literally reproduced in the volume devoted to him.

In the month of May, the correspondence with Dr. W. George Ward on the Free Will controversy took shape, as given in *Dr. Ward's Life* (p. 360). The issue was the article appearing in *Mind*, in January next (1880). This correspondence and polemic was finally wound up by me in a letter of 13th November, 1880,—which is given in Ward's biography (p. 362).¹

Winter Session, 1879-80, and Recess following.

The session 1879-80 concluded my College career. Owing to the state of general exhaustion experienced at the commencement, I did no additional work this session; being content to struggle through the teaching duties, and counting the days when the session would be finished. It was during the second hour that the weariness was most intolerable. Had I only been confined to one hour's teaching, I might have gone on two or three years longer. I knew well enough the risks of giving the appointment into the hands of the Tory Government; but I had no alternative, and

¹ In the April number of *Mind*, Dr. Ward gave a lengthened reply to my paper on Free Will. This was his last appearance on the subject, and he received a hint from the English Roman Catholic bishops as to the impropriety of his appearing in the columns of such an objectionable periodical.

was resolved to resign at all hazards. It was quite a surprise when the Disraeli Administration dissolved Parliament in the spring, and suffered defeat at the polls. This, of course, considerably altered the possibilities of the succession. My resignation was actually given in on the 10th of May, and was brought before the University Court, at a meeting held three days after. My retirement, accordingly, was approved by the Privy Council on 19th May,—which made the Chair vacant. The vacancy was filled up in the end of June, by the appointment of W. Minto as my successor. My letter to the Court was as follows :—

“ It is with much regret that I apply for permission to retire from the Chair of Logic upon the superannuation allowance due to my length of service. Although not to appearance out of health, I have for some time been barely equal to the strain of teaching, and cannot at the age of sixty-two be expected to recover lost ground. Moreover, it is my wish rather to retire at once than to wait till the failure of my powers becomes conspicuous and detrimental. I enclose a medical certificate from Dr. Andrew Clark, London.”

As the letter was accompanied by a certificate from Dr. Clark strongly recommending that I should be allowed to retire, and basing the recommendation on consultations extending over several years, the Court agreed to recommend to Her Majesty in Council the acceptance of my resignation.

SUPPLEMENTARY NOTE TO CHAPTER VI.

Proceedings of the General Council, 1870-80.

This decade was mainly concerned with the Agitation on the Amendment of the Curriculum, and, more especially, with the question as to the retention of Classics. The Curriculum altogether was overhauled by Committees; and discussions were raised as to the University Commission of 1876, both on its first appointment, and after it gave in its report.

At the meeting of Council in April, 1870, Rev. Mr. Stephen of Renfrew moved that, as the General Councils are inadequately represented in the University Court, a Committee be appointed to consider the whole question. The motion was unanimously agreed to. Professor Struthers moved that, as there is only one Bursary in the Faculty of Medicine, the Council represent to the Court the importance of making known the want of Medical Bursaries in the University. This, too, was unanimously agreed to.

In October, 1870, the Committee on Representation gave in its report, and was re-appointed, with additional members.

The April meeting of 1871 was mostly occupied with a lengthened printed report of the Committee, anent changes in the Universities Act.

In October, 1871, a further report was given in as to the re-constitution of the University Court. To this was appended, *inter alia*, a dissent against continuing the election of the Rector by the students, and a proposal to transfer the right to the General Council. At this meeting, also, a motion was made by Dr. Christie for improvement in the Curriculum of Arts; and a Committee was appointed.

In April, 1872, a detailed report of the Committee on Changes, and Dr. Christie's Committee's report on the Arts Curriculum, were laid on the table. The Committee declined to recommend any change on the present Curriculum for the Degree of M.A., but recommended a separate degree, for which the amount of Classics would be reduced. Even this modicum of change was opposed by Professors Geddes, Black, and Robertson-Smith.

In April, 1873, a deliverance of the University Court was read, on the Council's recommendation of April, 1872, anent the institution of an Optional Degree,—to the effect that GREEK should cease to be a compulsory part of the Curriculum; and without reference to a new degree. This motion had been carried in the Court through the presence of Grant Duff as Rector, and by means of his casting vote. He was, however, so ill-advised as to lay on the table of the Court a lengthened scheme of Classical study prepared by himself, which was obviously ill-adapted for discussion. Accordingly, on the motion of Dr. Pirie, the Court passed a resolution to refer it to the Senatus, for an opinion and report. When it came to the Senatus, Dr. Pirie criticized the details, simply for the sake of talking it out, so that no report should be possible. The course followed by the Senatus, in consequence of the pressure exerted by the Court's deliverance in the matter of Greek, was to suggest an inferior degree, from which Greek might be omitted. This was the view of the majority that always upheld the Classical interest. The minority that favoured the Court's resolution demanded to know what bursaries should be available for such a degree; it being sufficiently understood that the bursaries, in general, had exclusive bearing upon the M.A. degree. To meet this difficulty, the Classical majority framed an opinion for counsel to examine the bursary foundations, and to specify those that might be held as detachable from the M.A. Curriculum. The counsel chosen for the reference were Rutherford Clerk,

then at the head of the bar, and Professor Norman Macpherson, who, from his King's College connexion, was the man most familiar with the bursary foundations. Half a year elapsed, and no opinion was forthcoming. On pressing the legal gentlemen to comply with the request of the Senatus, an opinion was received of so vague a character as to be practically useless. In point of fact, no definite opinion could be given. The reference was simply a manoeuvre to stave off the whole question, and nothing further came of the new degree. The Senatus did, indeed, send up a report recommending a new degree, but declined to go into the question of bursaries, until the Court should approve. But the delay in obtaining opinion of counsel induced Mr. Webster to press this matter, at a subsequent meeting of the Court. In answer to his pressure, it appears that the Senatus simply gave in a narrative of proceedings.

There was then produced the draft deliverance of Grant Duff,—which was given in full, and referred to the Committee of the Council on the Arts Curriculum. It appears that this Committee had met on a previous day and considered the deliverance in anticipation, and, accordingly, gave in a report, in which the majority favoured the principle of a single degree with options. Thereupon, Dr. Christie moved the adoption of the report, and Dr. David Brown moved an amendment in favour of the new degree. By this time, matters were becoming serious for the Classical interest, and an extensive whip took place by securing the clergy of the two Synods,—which led to the largest division that had yet taken place in the Council ; there being for Christie's motion, 37, for Dr. Brown's, 123.

In the meeting of October, 1873, I took the step of moving the omission of Greek from the compulsory subjects in the Bursary Competition. Dr. Beverly seconded the motion ; and a negative was moved by Mr. W. Paul,

and seconded by Rev. Mr. Thomson, of Belhelvie. There voted 25 for the motion, and 42 for the amendment.

In April, 1874, the Committee on the Arts Curriculum was re-appointed. The meeting was principally occupied with reports on Medical Bursaries and the Medical Curriculum.

In October, 1874, Mr. Stephen gave in the report of the Committee on Changes in the University Act and Ordinances, which had been for some time under consideration, together with the Draft of a Bill for carrying them into effect. The Curriculum Committee on a New Degree reported in favour of a revival of the Degree of B.A.

In April, 1875, were given in a further report of the Committee on Changes, and a report of the Committee on the Curriculum, which now took the direction of new legislation.

In October, 1875, was given in the report of the Committee on Changes to the effect that the Committees of the Councils of St. Andrews, Glasgow, and Aberdeen, joined in favouring recommendation to the Government to appoint a Royal Commission.

In April, 1876, the Committees on Arts, Ordinances, and Curriculum were re-appointed to bring up a joint report on the subjects which they deem it advisable to bring before a Royal Commission, about to be created.

The Royal Commission being now appointed, a copy of the Commission was forwarded to the Council, and laid before the meeting of October, 1876, accompanied with a desire to be furnished with the names of any members who might give evidence before the Commission. Dr. David Brown moved the report on the subjects to be brought before the Commission. The Committees were re-appointed. Mr. Ogg submitted a motion for a representation to the court in favour of the establishment of Lectureships for the Promotion of Secondary Education. A special Committee was appointed to deal with it. The

University Court gave a deliverance to the effect that the Senatus had made arrangements for the exchange of books at Marischal College.

In April, 1877, Mr. John Fyfe, on his appointment to the Chair of Moral Philosophy, resigned the office of Clerk to the Council; and Mr. Robert Walker was appointed in his stead. The October meeting of this year was occupied mainly with the question whether Dr. Christie, who had been appointed to the Professorship of Divinity and Church History in the University, could remain the Council's Assessor in the Court.

At the April meeting, 1878, a Committee was appointed "to draw up a statement of the principal changes contemplated by the Royal Universities' Commissioners in their recent report, and to indicate their bearing on Scottish education generally, and particularly their effect on this University".

This Committee reported at great length to the meeting of Council in October, 1878. The gist of the report was as follows:—Mr. Duguid Milne made a motion, anent options, —which was discussed, but not put to the vote. A motion was made by Professor Black, to the effect that the Council approve of options in the course for a degree in Arts, provided (1) that sufficient breadth and solidity be maintained; (2) that, in all cases, English, Latin, and Mathematics be imperative. To this, an amendment was moved by Mr. J. F. White, and seconded by Principal Brown, to substitute "Classics" for Latin; but it was negatived by a large majority. A Constitutional sub-Committee reported in favour of numerous constitutional changes. Full consideration of this report was deferred by the Council till next meeting.

At next meeting, April, 1879, the report was considered, but was not finally disposed of till the October meeting. In October, "Professor Bain moved that the report of the Committee on the Commissioners' Report be approved of".

Professor J. W. H. Trail seconded. Mr. Duguid Milne moved that the Committee's resolutions be adopted, subject to the variation that options be allowed for Latin, at the Entrance and Bursary Examinations and Competitions. Rev. Dr. Davidson, Inverurie, moved that the Council do not commit itself to abstract resolutions. This last motion was carried by a large majority.

CHAPTER VII.

TEN YEARS OF RETIREMENT—1880-1890.

Session 1880-81, and Recess following.

(June, 1880, to September, 1881.)

WHILE I was in London in the summer, a meeting of the Education Society took place (in June), at which I gave an address in reply to the reported criticisms of the Society upon the *Education* volume. The moot points where strong opinions were entertained had to be reconsidered and to some extent argued ; yet, there was no real novelty, either in the views or in the handling, as compared with the volume itself. On subsequent occasions, expositions were given upon the more abstruse and burning topics ; while, on the teaching of English in particular, the whole subject was exhausted in the volume brought out in 1888. One special topic was re-stated and discussed in the present address,—namely, the exposition of a double subject.

The University Assessorship fell vacant this year, and I was urged, mainly by Dr. Struthers, to become a candidate ; it being no wish of mine to have

any more official University work. It was very much against my inclination that I canvassed a few friends for votes ; but, having once accepted, I considered this to be a duty to my supporters. The proceedings connected with the election are all in print and speak for themselves. The result of the poll was declared on the 4th of November. Thereupon, a party of students formed the resolution to nominate me as next Rector. On the day following—the 5th—Lord Rosebery gave his address; and the promoters of my candidature meant to make use of the opportunity for a demonstration. This, however, I thought it proper to obviate by purposely absenting myself on the occasion.

Ostensibly, the battle for the Assessorship was fought on the Classical question ; and Professor Robertson Smith, then in Aberdeen, took an active part in urging this consideration. It was deemed fitting that a reply to his strictures should be circulated among the members of Council ; and, as he was charged by me with garbling my statements, he thought it necessary to print a rejoinder, which was also circulated, and compelled a further statement on my part.

My principal occupation now was the preparation of the *James Mill Biography*, a task involving a considerable amount of research in various lines. The relations with Jeremy Bentham had to be

explored from Bentham's writings, which were extensively perused for the purpose. I obtained the assistance of Mr. A. F. Murison in a thorough search at the British Museum, chiefly in the collection of Francis Place's MS., recently acquired by the Museum. A further research had reference to the history of reform in England,—the principal contributors to the movement prior to the Reform Bill. For this also the Museum had to be resorted to.

I myself, in company with Minto, had previously examined the numbers of the *St. James's Chronicle*, which James Mill edited for a time. These researches were continued into the following year.

The same year I had occasion to prepare a biographical notice of my old friend John Shier, —which was read to the Philosophical Society in December, and afterwards printed in the volume of Transactions.

The winter of 1880-81 was memorable for its severity. The fall of snow in December and in January resulted in an unusual amount of snow-drifts, both in the streets and at every point in the suburban access; while the means of clearance could hardly be said to exist. Such was the state of things down to the end of the month of March.

On the 2nd of April (1881), we left for Glasgow, and stayed two nights with Professor Veitch, including the Census Sunday. We proceeded thence to the Manse of Wishaw, and spent two days with my old pupil and assistant, the Rev. Alexander Harper. Having had an invitation from Alfred Sidgwick to visit his father and mother at Skipton, we made that our next stage on the way south. I had various walks and talks with him; he being anxious to get my advice as to his logical studies. Our final destination was Bath, where we obtained lodgings in Brick Street for the next three weeks. Mr. and Mrs. Webster, of the Hermitage School, Bath, were always ready to give us hospitality, and otherwise facilitate our movements.

Mr. Murison came down to Bath on the 12th of April, to discuss the James Mill researches. On his leaving for London, he encountered, on the boards, an announcement of the death of Disraeli. I also saw Roebuck's widow during this visit, and got from her the very rare volume of Roebuck's pamphlets for 1835, which made an important epoch in the political movement of the time, and had embodied several of James Mill's own political articles.

From Bath, I made an excursion to Ford Abbey. This enabled me completely to realize

the location of Bentham and the Mills for the four years during which Bentham occupied the Abbey. Leaving Bath for Bristol, I found in Clifton Mrs. Colman, Mill's youngest daughter, and, of course, conversed with her as to the incidents of the biography. She had engaged to write recollections of her father to the *Fortnightly*; but, when she came to the execution of the task, she shrank from it and abandoned it. Leaving Clifton, I went to London by way of Oxford first, and then to Cambridge, arriving in London on the 19th of May. I made an arrangement with Harriet Mill to take a carriage drive to all the houses in which her father had lived. We went to the place of John's birth, 13 Rodney Street, Pentonville, and then to Newington Green, where James Mill had a house next door to John Taylor, the grandfather of Mrs. Taylor's husband; and, finally, we visited the house in Queen Square which he rented from Bentham and occupied for many years till he removed to Kensington. Before leaving London, I went to a dinner at Lord Rosebery's, where were Charles Villiers, Smalley, the American correspondent, McColl, and John Webster, then M.P. for Aberdeen. Webster made a point of having a long conversation with Villiers, especially on the Irish policy of the Government, from which he strongly dissented.

From Aberdeen, I made a journey to Laurencekirk, to see Fettercairn House, where Mill had so often been domiciled. By an accidental omission on the part of Lord Clinton, the housekeeper could not show me the portrait of Mill's pupil, Miss Stuart. Being accounted very precious, it was covered with a protection, under lock and key.

In August, I had a communication from Lord Rosebery desiring me to become a Burnett Trustee in the room of Grant Duff; he, as Lord Rector, having the power of nomination to this particular vacancy. It was, no doubt, John Webster that instigated the proposal.

On the first of September, the British Association met at York, under the presidency of Sir John Lubbock. To me, the most interesting communication was the address of Burdon Saunderson to the Biological section. There was a deputation from Aberdeen, headed by Sheriff Thomson and Dr. Struthers, to invite the Association to come again to Aberdeen. Going to Buxton, I had a meeting with Murison in connexion with the Mill biographies, now nearly completed. I then returned to Aberdeen for the winter in the end of the month.

This year, my only contributions to *Mind* were two articles on Herbert Spencer's new edition of his *Psychology*. In it, he made an insertion entitled "Congruities". This was designed as a summary that should

bring the several lines of argument to a focus. In point of fact, the chief, although not the only, topic discussed was the great standing metaphysical position of the reality of the outer world.

In the first of my articles (April), reference was made to the treatment of the two great laws of Association, Contiguity and Similarity; the intention being to suggest that Spencer had inverted the natural order in making Similarity the principal and Contiguity the subordinate. This was one of many occasions when the suitable treatment of Association was brought into discussion. From my point of view, the greatest omission on Spencer's part was the disregard of the really important circumstance in the working of Similarity,—*viz.*, the accompanying fact of diversity, or the mixture of the like and the unlike in the same subject-matter.

In the July number, there is a very full *résumé* of Spencer's original handling of the Realistic position, together with a criticism both of that part and of the supplementary treatment in the new edition. The whole treatment simply resolves itself into the completest statement and advocacy of the Idealist position that I have ever supplied or feel myself able to supply. The topic has been afterwards alluded to in somewhat different aspects. What, it seems to me, most needs expanding and justifying, is the independence of the three different questions—Perception, Materialism, and Theism. Some of our most distinguished writers, among whom I may name Ferrier and Huxley, have not succeeded in keeping the two first entirely independent and apart.

Session 1881-82, and Recess following.

The agitation for the Rectorship was in full force at the time of my return. The first step on

the part of the opposition was to obtain a conference of delegates from the different Arts classes, simply to oppose my election, and to find some one whose merit it would be, not so much to get in himself, as to keep me out. The election took place on the 12th of November. It was attended with another exceptional incident. A deputation went up to the Senatus to protest against the election on two grounds, both equally remarkable; the one that, having retired on the ground of failing health, I was necessarily incapable of discharging the duties of the Rectorial office, the other, even more remarkable, in fact an Irish bull,—*viz.*, that, as Emeritus-Professor, I still bore the name of Professor, and could not be elected in consequence. The Principal's statement of the facts to me was as follows :—

“13 CHANONRY,

“12th November.

“MY DEAR SIR,

“I have the pleasure of informing you that you were this morning elected Rector of the University of Aberdeen by a majority in all the nations. There was, however, a protest taken against your election by Mr. M'Kenzie Davidson, a medical student, on the ground of your being an Emeritus-Professor.

“The Committee, however, having exhausted its powers, we referred the matter to the Senatus, which appointed us, at a meeting to be held on Monday the 14th at 6.30 P.M.

“It has just occurred to me that you are now a party

interested, and that therefore I should state to you the facts in order that you may appear at the Senatus meeting if you deem it advisable.

“ Faithfully yours,
“ W. R. PIRIE.”

My procurators, finding that the Principal had not declared me to be duly elected, after the vote, resolved to provide me with a declaration under their hand, that I had received a majority of votes in every one of the four nations. The consequence of the distraction of views was that, at the meeting of the University Court, I was in possession of three different documents; one being a minute of the Senatus, stating what representations had been made to the body, and giving no decision. I could not take the Chair, until I knew on what authority I was to be admitted. The Principal then took the matter in hand, dictated to the Clerk the circumstances of the election, and held the election as valid and sufficient.

At the moment when the election was taking place, or, rather, after the result was just declared, Professor Black died. It was he that took the lead in the Council in the Assessorship contest.

As it had been resolved to commemorate my connexion with the University by a portrait and a medal, I had sittings with George Reid in the months of March and April (1882). It so happened that this first portrait gave dissatisfaction to the

Committee, and it was commenced anew, and finished in September.

The beginning of this year, 1882, saw the publication of the volumes on the Mills.

They went through the usual ordeal of criticism, with approval and disapproval; but an article appeared in the *Spectator* that raised a matter of serious import as regarded James Mill's moral character. The author of the article was Sir Edward Strachey, son of the official of that name, who was taken into the India House along with Peacock and Mill in 1819. By a singular exercise of official authority, Strachey was lowered in his rank, and Mill placed above him, and the explanation given in the *Spectator* (15th April, 1882) was that this was due to a successful intrigue on Mill's part. This charge was not authenticated from an outside source, but existed simply as a tradition in the Strachey family. It was, of course, indignantly repudiated by Miss Harriet Mill. I had some communication on the subject with Mr. Macvey Napier, who had been an official in the India House in James Mill's time, and continued so till the abolition of the Company. He considered the charge as wholly devoid of evidence, and, in the last degree, unlikely. I got into correspondence with Sir Edward Strachey himself—in the course of which, he modified a good many of the statements of the article. If only on one ground, the charge was wholly unjustifiable,—namely, because the publication of it, or the bringing of it forward, was postponed until the death of every contemporary of the transaction. It should have been advanced while Peacock or John Mill was alive to give his view of it; either of whom would have set the matter in its true light. All that I could say was that Strachey had made a number of collateral statements in the article which could be shown to be either incorrect or highly improbable.

Our movements in the Summer were influenced by an unfortunate accident to my wife, who, by a fall, broke two of her ribs, and had to remain for some time in bed, and for a good while afterwards needed to avoid muscular strain.

In the beginning of March, I had to give a lecture to the University Literary Society, the subject being "Poetical Criticism".

It dealt principally with the foundations of poetic art in our emotional nature, and the influence of poetry in widening the resonance of these emotions, so as to make them more available for human enjoyment. It was not literally reproduced in any subsequent publication, although the view thus presented was made use of in the lengthened definition of poetry given in my volume *On Teaching English*.

On the way south, later on, I spent a night in Birmingham, to give a lecture to the Teachers' Society, on their invitation. It also was on English, the substance of it being the first two chapters of the volume already mentioned. While in Birmingham, I made the round of the Board Schools, attended by the Secretary to the School Board.

In London, instead of making a search for a private lodging, we went into the boarding-house, Queen's Gardens, Bayswater, where Herbert Spencer was then permanently settled. Early in May, I had to give another lecture on Higher English

at the Memorial Hall, in connexion with the Education Society.

In the middle of May, we left for Aix-les-Bains. On going in search of a hotel, we lighted upon Professor Martin of Aberdeen, and took up our abode in his hotel. The treatment of patients at the baths was limited to three weeks, and had to be followed by a stay in some bracing place. Proceeding to Lucerne, we ascended the Righi, and stayed a week at the Kaltbad hotel, and, on the 22nd of June, arrived in London. There, I saw Harriet Mill, and obtained her evidence with reference to Sir E. Strachey's attack on her father. On the way home, in July, we paid a visit of two days to Professor Veitch, at his country house in Peebles, and reached Aberdeen in the end of July.

Session 1882-83, and Recess following.

In the middle of October, we went, for upwards of a fortnight, to Harrogate. One of my occupations of the summer had been the preparation of the Rectorial address. This took the form of University history. As regards the Scotch Universities, I followed the cue of Professor Veitch in two articles contributed by him to *Mind*. There were a number of sources of University history that had to be

examined ; and the volumes contributed by Cosmo Innes to the Bannatyne and Spalding Clubs on Glasgow and King's College were especially valuable. In addition to the historical survey, I made a point of indicating what I thought a sound view of the University ideal, partly as bearing on professional equipment, and partly as rising into the higher sphere of individual accomplishment for other ends than the professional. I had in mind the altogether exaggerated scheme of University study in the Rectorial address of John Stuart Mill at St. Andrews, and aimed at something both sober and practical. I doubt now whether the attempt was really successful, or whether there is yet in circulation a sufficiently distinct analysis of the University curriculum into the professional and the non-professional, with any definite judgment as to what the latter should consist of.

During our stay at Harrogate, the address was finished and another undertaking commenced. This was a study of Leslie Stephen's book on *Ethics*, which had lately appeared. The perusal was followed by an article entitled "On Some Points in Ethics," which came out in *Mind* in January following.

The article was chiefly occupied with a consecutive review of the work ; there being also certain preliminary observations independent of it.

In the first place, there was a re-discussion of the wording of the greatest-happiness principle, with especial reference to the point whether society should take the entire charge of the individual, or confine itself to those parts of conduct that bear upon social welfare.

A supplementary treatment was provided on the difficulties of hedonic measurement as pressed by Sidgwick. What was chiefly urged was the persistent practice of stating some objective equivalent for pleasures and pains, and especially for those that came under the notice of the moral authority.

The exceptions to Truth were exhaustively discussed, and an inference drawn as to the proper place to be assigned to it among the virtues.

Objection was taken to Mr. Stephen's too unqualified introduction of Strength as the rule of Right. This paved the way for a lengthy treatment of the malevolent principle in the human mind, with a view to showing that the recognition of it was wholly inadequate, and was the reason of the author's own acknowledgment of failure to explain important facts. This was the first opportunity taken advantage of for a sustained discussion of the question. In a subsequent article, in the same volume (p. 562), the position was indicated at still greater length in a polemic with Mr. Bradley, who, in a previous page (415), had challenged the accuracy of the conclusions.

In other respects, Mr. Stephen's treatment was surveyed with general commendation. Exception was taken to his substitution of Health for Utility, as the ultimate moral criterion.

The following is a letter from Mr. Stephen, relative to this article:—

" 13 HYDE PARK GATE SOUTH, S.W.,

" 3rd January, 1883.

" MY DEAR SIR,

" I have just read with very great interest your article in *Mind*; and am exceedingly glad to have so much approval from so great an authority. I can learn from your criticisms the better as we do not differ too radically for profitable communication.

" There is only one specific matter upon which I feel a wish to trouble you at present. Your statement about malevolence certainly implies some real difference of opinion. I do not think, however, that the difference is quite so great as you suppose. I certainly meant to take a ground similar at least to yours; *viz.*, that as a fact there is such a thing as pure malevolence; though the sooner we get rid of it the better: and therefore, I meant to guard myself against saying that benevolence was a necessary element of feeling in that malevolence implied a contradiction. In trying to point out that malevolence is really of less prevalence than is sometimes asserted; and that a great part of the pleasures due at first sight to it are really due to other causes, I very probably expressed myself too strongly and laid myself open to your criticism. But I think that the difference between us is not one of principle but of our estimate of the actual proportion of cases to which the principle applies.

" As for the critic's malevolence, I think from my own experience that it is due in great part to the much greater ease of saying smart things in attack than in praise. Why that should be is no doubt another problem; and so is the curious question about humour to which you refer, and which I wish very much that you would discuss at greater length.

" Of one thing I am quite certain that in criticising me, you could not have enjoyed any of the pleasure of malevolence. I wish you as much as possible of all others

(perhaps as a good utilitarian I should allow you a little of that too) for the coming year.

"Yours very truly,

"LESLIE STEPHEN."

Mr. James Ward, of Cambridge, being at this time one of the examiners in the University of London, had suggested to the Senate a modification of the prescription for the philosophy degree, which had remained as arranged when Baynes and I were examiners, in 1858. Ward submitted a draft on the model of what had been introduced into Cambridge, giving more detailed particulars than in the existing scheme. The Senate referred the suggestion to all the former examiners for their views. Some (and Baynes was one) expressed simple acquiescence. My own opinion was adverse; and, accordingly, I gave a statement of sundry objections to the plan, which was printed in the minutes of the Senate along with the other answers; the effect of the whole being to induce the Senate to abide by the *status quo*.

The incidents of the year were completed by the Rectorial address, on the 15th of November, and the presentation of my portrait on the 27th of December.

I was, of course, too familiar with the reception given to Rectorial Addresses, to expect a patient hearing, or indeed any hearing at all. On reaching

the platform, I could see at a glance that the forces of disturbance were organized and omnipotent. The meeting was wholly at their mercy; and the only question was, whether the interruption was to be partial or total. I proceeded to read for a few minutes, deliberating with myself what my duty and policy should be in the situation. The Provost came to my aid by the timely suggestion that the address should be held as read, and given to the reporters. The Principal (Pirie) acquiesced; and this was done, accordingly. In less than a quarter of an hour, I obtained a release. A further good consequence of the mode of action pursued was that, on my second election, it was not proposed or expected that I should compose a second address.

In the July number of *Mind* for the year 1883, Mr. Malcolm Guthrie's work on Spencer was noticed with especial reference to some critical strictures upon *Mind and Body*.

The important part of the article consisted in revising the attempt to calculate our mental possessions and to compare their amount with the number and minuteness of the nervous elements as known to us,—*viz.*, nerve fibres and nerve cells. The figures assigned to our mental acquisitions were, for certain reasons given, declared to be far below the reality, and the difficulty of finding nerve accompaniments in sufficient amounts rendered all the greater.

As Mr. Guthrie had fully admitted the thorough-going concomitance of mind and body, the issues that he raised concerned chiefly the modes of expressing the concomitance, which were vindicated anew.

The main project now in hand was the contemplated revision and enlargement of the *Rhetoric*, for which an extensive series of readings was commenced. Symonds's books on the Greek Poets were examined for critical hints and illustrations, but perhaps did not yield a great deal.

The London excursion for the summer included a visit to Salisbury and Stonehenge.

Session 1883-84, and Recess following.

On the first of October, we left for London on the way to Aix-la-Chapelle, where we stayed a month and took the waters. William Hunter was staying there at the same time. We then made a tour in Holland; going first to Antwerp, thence to the Hague, and from that to the four University towns. At Amsterdam, I saw the professor of philosophy, Spruyt,—who took me to the house of Spinoza, in the Jews' quarter, and to the Jewish synagogue there, supposed to be the same building in which Spinoza had been excommunicated. This, however, was discovered to be a mistake, the present building being of a later date. Going next to Leyden, we dined with Pro-

fessor Kuenen. From thence we went to Utrecht, and saw Professor Donders, who was still teaching there, and also the professor of philosophy, Opzoomer,—who had a bright young daughter already celebrated for a popular romance. From Utrecht, I made an excursion alone to Gröningen, to see Professor Van der Wijck. He took me to a monthly reunion of the professors, who all spoke and understood English; and I received from the professor of Greek, a Frisic vocabulary prepared by his father, but not finished. I then returned to Utrecht, and made the journey home by Belgium to Calais for London. Before leaving London, I visited Bournemouth, to see Robertson, now a pronounced invalid, and requiring to employ a substitute at University College.

In the University Court, this year, the chief business consisted in overhauling the draft of the Universities Bill; being the first of the series of Bills introduced by the Government. The greatest objection to the Bill on all hands was the financial insufficiency. How this provision would have been modified, irrespective of the Equivalent Grant which came in at a later stage, it is impossible and needless to say.

The only other incident of importance in the business of the Court was an appeal by the medical students on the subject of Pathology teaching.

After a hearing by counsel, on behalf of the students, the Court sustained the appeal, and recalled the decision of the *Senatus* on the subject. This was almost the solitary instance where the *Senatus* was overborne on appeal to the University Court.

In March of this year (1884) was published the volume of *Practical Essays*—nine in all. Seven had already appeared in various places; two were new,—*viz*: “The Art of Study” and “Religious Tests and Subscriptions”.

“The Art of Study” had formed a paper at the Philosophical Society, in January. It was intended to bring to a point the methods of acquisition by private reading, as contrasted with study under a lecturer or teacher. It was thus regarded as a supplementary chapter to the volume on *Education*. It must have been composed in the end of the previous year.

The article on Tests was the result of a purpose long entertained to deal with religious liberty in the form suited to the juncture of the time. A search was made into the creeds of existing Protestant churches in this country, in America, and on the Continent of Europe. With reference to the English Church in particular, Mr. Murison conducted a research into the recent legislation, and the reports of Commissions relating to subscription. A volume compiled under the auspices of the Second General Council of the Presbyterian Alliance convened at Philadelphia, September, 1880, gave a summary of information respecting the contemporary creeds in all parts of the Protestant world. Professor Kuenen of Leyden gave me privately some interesting statements regarding the German Protestant Church and its dependence on the State.

The gist of the article was to reason out the position by way of deciding the proper attitude of the ecclesiastical bodies towards the continued literal imposition of the ancient creeds at the present time.

On the 25th of March, a public meeting was held at Aberdeen for considering the adoption of the Public Libraries (Scotland) Act. It fell to me to move the adoption of the Act; and I was seconded by Mr. Alex. Walker, ex-Dean of Guild, under the presidency of Lord Provost Matthews.

In March, I received a complimentary address from the medical students, in consideration of the part I had taken in the Pathology dispute. As my position was purely judicial, this was, strictly speaking, an informality. In point of fact, however, I had given their committee some advice as to the best manner of stating their case to the Senatus, without in any way committing myself to an opinion on the merits. When it came before the Court as an appeal, the judgment of the Court was moved by Dr. Webster, and was framed from purely legal considerations. At the same time, the Senatus' representatives still upheld the position taken by the Senatus.

This being the year of the Edinburgh Tercentenary, I went to Edinburgh, on invitation, and remained during the celebration week. The only notable incident, as far as I was concerned, was what

happened at the grand banquet given to the invited guests under the presidency of the Chancellor. There were grouped together in proximity Principal Cairns, Dr. Martineau, myself, and Principal Tulloch, all on one side of the table ; Dr. W. D. Geddes being on the other side. Cairns and Martineau interchanged views on Germany,—although Martineau had never been there,—and became very cordial on things in general. From Martineau, I had some interesting reminiscences of John Mill's early days when they were both contributors to the *Monthly Repository*, edited by Fox. Principal Tulloch was always a genial conversationist. The talk was brisk and lively, until the chairman gave permission to smoke,—at which point, Martineau had to leave, being, it seems, always made ill by tobacco smoke.

Proceeding from Edinburgh, we made an excursion to the Lakes—which was our last visit to the Lake Country. Thence we went to London for several weeks.

At the dinner of the Aberdeen University Club, in May, the question of University Reform, with more special reference to classics, was mooted.

The Aristotelian Society had been started, ↴
mainly at the instance of Shadworth H. Hodgson, in 1879. I became a member, in January of the present year, and attended the meetings when I

went to London in the summer. For the first two or three years, I did not contribute papers, but occasionally took part in a symposium.

I returned home in the beginning of July. There was no incident of any importance, until the autumn agitation connected with the rejection of the Distribution of Seats Bill by the House of Lords. I attended the public demonstration in Aberdeen, which took place on Saturday, 16th of August, but declined to make a speech—*i.e.*, on the spur of the moment, to fill up a gap. On Friday the 29th, Gladstone made his great speech in Edinburgh, in the Corn Exchange, at which I was present. In Princes Street, I met and had a talk with Mr. David Littlejohn (our local Liberal Secretary), when we both agreed in expressing disappointment and dissatisfaction with his reference to the hereditary principle, to which he gave a partial or qualified approval. On the 15th September, he came north to Haddo House for two days; Lord Aberdeen inviting a number of the Aberdeen Liberals to meet him. I was asked for the first day, and saw his arrival. In the drawing-room, after dinner, some of us pressed him very hard upon the House of Lords question; and, from what subsequently passed, we seemed to feel that his mind was working towards more thorough views on the question. Next day, he

met a deputation from Peterhead, in the library, and made the remarkable admission that, if the Lords threw out the Bill again, his language towards that House would be very much changed. In point of fact, it was evident that he had made a decided advance since the Edinburgh speech, a fortnight previously.

Session 1884-85, and Recess following.

In the middle of October, I went, for a few weeks, to Harrogate, being now hard at work on the revised *Rhetoric*.

While I was at Harrogate, a letter was received as to the next Rectorial Election; to which an answer was given on the first of November. My re-election took place on the 15th of November. Lord Randolph Churchill was the rival candidate.

In the University Court, the first important matter was the consideration of a Report from the Senatus, embodying a grand scheme for the extension of the University buildings, more especially in Marischal College. This was the beginning of the vast operations for University extension.

The next business was the question of the Bursary inequalities, which had to be remedied through the alteration of an ordinance to be submitted to the Privy Council; the object being to give the Senatus power to keep back bursaries,

when necessary, in order to prevent the recurrence of the inequalities.

The dissolution of Parliament, consequent on the rejection of Gladstone's Home Rule measure, brought on the General Election, in the month of March. I was surprised by an invitation from the Radicals of Sheffield to contest one of the divisions of the city. Whether I had any chance of being returned, I have no means of knowing; but I had no alternative save to decline the honour of a seat in the House of Commons.

The correspondence was as follows :—

“ 62 DEVISION STREET,
“ SHEFFIELD, 2nd March, 1885.

“ DEAR SIR,

“ A meeting of Radicals was held to-night in Sheffield to consider the selection of a Radical candidate for Sheffield—or rather one of its divisions. The following resolution was moved and unanimously carried: ‘That Prof. Bain of Aberdeen University be invited to contest one of the divisions of Sheffield at the general election’.

“ I have great pleasure in forwarding you the resolution, and venture to hope for a favourable reply.

“ I may state that your name has been more than once mentioned in this connection, and that the favourable reception with which it has been met, gives us every reason to believe that your candidature would be successful.

“ I venture to remain, Dear Sir,

“ Yours most sincerely,

“ WALLACE KELSON,”

“ Sec. *pro tem.*”

“ ABERDEEN, *5th March*, 1885.

“ I received your letter of the 2nd, in which you convey to me the invitation of the Radicals of Sheffield, to become a candidate for one of the divisions of the city at the general election.

“ I fully appreciate the compliment of being singled out as a worthy Parliamentary representative of your city in the new era.

“ If I feel compelled to decline the honour, it is not from natural distaste to the work of the House of Commons, nor from difficulties as to party allegiance. The unfortunate and decisive circumstance is, that I have reached an age when most men think of retiring from Parliament; while not possessing exceptional buoyancy for my years, but rather the reverse. It seems to me, therefore, that I am not in a condition, either to do credit to myself, or to fulfil your reasonable expectations, in becoming one of your members.

“ With much regret at disappointing your wishes so cordially expressed,

“ I am, Dear Sir,

“ Yours faithfully,

“ A. BAIN.”

“ 39 FRANKLEN STREET,

“ SHEFFIELD, *6th March*.

“ RESPECTED SIR,

“ I have received yours of the 5th with considerable regret. Your answer is of course decisive, and my duty is simply to thank you for your kind reply.

“ Permit me, however, to express the sincere hope that there yet lie before you many years of usefulness and joy.

“ I am,

“ Most sincerely yours,

“ WALLACE KELSON.

“ Prof. BAIN, LL.D.”

The month of April and beginning of May was devoted to a tour in Germany, for the purpose of visiting the more important University seats. Making our way for Dresden—by Cologne, Hanover, and Magdeburg—we spent six days there, and saw James Mill's grand-daughter, a young widow with a grown-up family.

At Leipzig, I called on Professor Wundt, and went through his psycho-physical laboratory. A young American student, Cattell, was very helpful as an interpreter; Wundt himself not being able to speak or understand English.

The next place visited was Jena. I saw only one of the two philosophy professors, but paid a noteworthy visit to Haeckel at his museum. He had recently returned from a tour in Ceylon, where he had gathered a number of rare and important animals that seemed to serve as missing links in the evolution of the higher species. A day at Weimar enabled us to see the house of Goethe, which, however, had long been divided into two; while the half occupied by Goethe's heirs bore the executry seal, owing to the recent death of the occupant, and could not be entered. The house of Schiller, on the opposite side of the way, was open to the public.

Our final and most important move was to Berlin. We called at once on Helmholtz. Madame

Helmholtz, one of the two energetic daughters of Robert von Mohl of Heidelberg, that I had met at the house of their uncle in Paris, arranged a dinner party for next day, which included Zeller, Virchow, and Lazarus.

I called upon Ebinghaus and Gizycki, and found both extremely interesting. We spent a day at Potsdam, with the family of Du Bois Raymond. Both he and Helmholtz took me round their laboratories. I also met Hoffmann, with whom I had been acquainted in London.

We returned to London, by Cologne and Brussels, on the 13th of May, and there found some College business with reference to new buildings. A deputation had been arranged to see Lord Rosebery at the Board of Works, and to solicit a Government Grant for a grand extension of Marischal College. As Rector, I had, as a matter of course, to accompany the deputation; and I remained in London till the end of June, returning to Aberdeen in July.

In September, took place the meeting of the British Association at Aberdeen, for which I had to prepare a paper on Anthropology—to be read at that section, under the presidency of Francis Galton. The paper appeared in full in the *Transactions of the Anthropological Society*, of which I was for a short time a member.

Session 1885-86, and Recess following.

The Universities Bill brought into this year's Parliament was again considered and found objectionable by the Court, as well as by the General Council.

Principal Pirie died on 3rd of November (1885).

In the beginning of December, I had to go to Manchester to take the chair at the dinner of the Aberdeen University Club for Lancashire. Professor Adamson was present as a guest of the club. In the same month, it fell to me to open a University bazaar, which took place in Aberdeen on the 18th and 19th December, with a view to raising funds for students' recreation grounds.

Thinking to escape some of the severity of our own climate in mid-winter, we went to Bath for several weeks in January and February, 1886; I being hard at work on the first part of the *Rhetoric*, which occupied the summer and autumn as well, and was sent to press and brought out next January.

On the 12th March, a meeting was held for the formal opening of the Lending Department of the Public Library, Provost Matthews presiding. Speeches were delivered by the Provost, Baillie Walker, Mr. A. O. Gill, and myself.

We stayed in London from the middle of May

to the beginning of July. During those weeks, I attended the meetings of the Aristotelian Society, and gave, I believe, a paper on "Association Controversies," which was printed in *Mind* in the following April. In July, we made an excursion northward as far as Thurso.

Session 1886-87, and Recess following.

This, which was my last year in the University Court, was signalized by one item of general public importance. It appeared from a letter in the *National Reformer* that an English student to medicine had been unable to obtain his degree, owing to conscientious scruples regarding the oath taken at graduation. I mentioned this incident to Dr. Webster, who was of opinion that a proposal should at once be introduced into the Court for the abolition of the oath, as being a relic of intolerance. I undertook to bring up the subject accordingly. By the help of Mr. P. J. Anderson, I obtained a history of the University oaths, and also referred to the usages in the other universities. I submitted a statement of the whole case to the members of the Court in advance of the meeting, and obtained a ready concurrence in favour of the total abolition of whatever savoured of a religious test; the Principal (Geddes) alone dissenting. It could be said with truth, and was a somewhat surprising circum-

stance, that Aberdeen was the last University in the Queen's dominions to retain a religious test.

We remained at home without incidents, until the 23rd of October, when I had a horse accident. My horse stumbled and fell, and I beneath him. It was one of those instances when concussion of the head destroys the memory for some period preceding the accident. In this case, I remained insensible for about three hours, and became permanently oblivious to what happened the hour previous. Besides concussion of the brain, the right shoulder was dislocated and severely crushed, while both legs were more or less injured, and there was a general stiffening of the body. After four weeks, during which the shoulder had to be kept bandaged, I got away to Crieff Hydropathic, and there shook off the stiffness, and partly recovered from the injury to the legs, which was of the nature of sprain; but the arm had to be kept suspended for a considerable time. I returned from Crieff early in December, and was able to attend a meeting of the Court on the 18th.

Mr. James Ward having brought out his important contribution to the *Encyclopædia Britannica* on "Psychology," I undertook to review it for the October (1886) number of *Mind*, and endeavoured to do justice to the salient strong points of the dissertation.

My movements in the early months of 1887 had in part reference to the means of recovery from what remained of the disability caused by my accident. The right shoulder was still a source of weakness, and the advice I took in London led me into a course of treatment, first by rubbing, and next by medical gymnastics ; the result being that the mere strength of the arm was restored, but the range was permanently contracted. I was capable of going on with the usual routine occupations both at home and in London, but, of course, with impaired vigour.

The University Court business had to be attended to. In January, a long discussion arose upon the preliminary examination in medicine, which had very serious bearings upon the numbers and income of the Medical School. Immediately after the meeting, I made a journey to London, staying with Croom Robertson, and, on account of my arm, performing the through night journeys with great difficulty. We remained at home till the beginning of May, when my wife and I went to London together, and stayed over the month of June, rendered eventful by the Jubilee celebrations.

The turns of politics had made Mr. Goschen Chancellor of the Exchequer in 1887. He consented to receive a deputation from the University

on the subject of our special needs for increased experimental teaching in Medicine and in Arts. The deputation consisted of the Earl of Fife, who introduced it, Mr. Duff, the member for Banffshire, Principal Geddes, Dr. Struthers, Professor Niven, and myself,—I being still Rector. I joined with the others in explaining to the Chancellor the growing necessities of the present time in this particular department, necessities which we were of ourselves unprepared to meet. Mr. Goschen listened attentively, but his deliverance was qualified by the circumstance that he had to deal with similar claims on behalf of the newly established English provincial colleges. The interview, however, was not entirely barren. In no long time, the accommodation of the medical teaching of Marischal College received an important extension at the hands of the Government, through the agency of the Board of Works. But in the Treasury minute it was distinctly stated that no further allowance need be expected. The estimated cost of the addition thus provided was £6000.

The paper on "Association Controversies," in the April number of *Mind*, was in a great measure polemical. It had in view the vindication of my original positions in *The Senses and the Intellect* against a variety of hostile strictures in various quarters. It dealt with such topics as: the terminology of Association, the sufficiency of Association as given to explain the Intellect, the position of Con-

trast, whether Contiguity and Similarity may be reduced to one statement, whether Association can be treated as a Faculty, the essential accompaniments of Association, etc. A large portion of the paper is devoted to criticism of Wundt's Doctrine of Apperception, as representing the higher workings of Intellect, or forming a distinct sphere of thought.

The paper was intended to embrace all the controverted topics that had emerged up to that time. Other objections to the treatment of the subject—as given in the volume on the *Senses* and elsewhere—came afterwards, and were answered in subsequent articles.

In the October number of *Mind*, I saw fit to raise a discussion on the important topic of neutral excitement, or feeling as indifference. It had been broadly maintained, by Sully and others, that there is not, and cannot be, such a thing as absolutely neutral states of feeling. The article counter-argued this position and pointed out the issues depending upon it. It was a sort of challenge to the supporters of the other view to make good their contention. The challenge was taken up in the following year by Mr. W. E. Johnson (January, 1888, p. 80), J. Sully (April, 1888, p. 248), Miss F. A. Mason (April, 1888, p. 253). In *Mind*, January, 1889, I replied in full to all the three critics, and appeared to myself to make good the original contention, without material variation or concession.

Part II. of the *Rhetoric*, which was brought to completion in 1887 and published in May, 1888, comprised the Emotional Qualities. This, of course, was the most difficult and venturous half of the subject, for reasons obvious enough.

Session 1887-88, and Recess following.

The Aberdeen University Club, London, had sent an invitation to me to take the chair at the dinner in November, 1886. This had been formally accepted, but was interfered with by the horse accident; my recovery being still insufficient for the effort. The invitation was repeated and accepted for November, 1887. The circumstances that gave interest to the moment and supplied the topics of the address from the chair were the Gifford Lectureship, just announced, and the special phases of the University Bill, as presented to Parliament during that year. The most notable item was the very low figure assigned to the students' power in the election of the Rector; being the lowest ever suggested, and not adhered to in the final draft, as it passed in 1889.

The early months of 1888 were mainly occupied in bringing out the second part of the *Rhetoric*.

My long experience of teaching English in the University, coupled with opportunities otherwise afforded, were turned to account in an improved and enlarged edition of the *Manual* of 1866. A considerable portion of the years 1884 to 1888 was devoted to working up the various topics, including fresh readings in English literature and in the writings of the best critics. Valuable help was rendered by Mr. J. B. Duncan, my class assistant in the years 1872-4, and now U.P. minister of Lynturk. Not

only did he search along with myself for suitable examples to illustrate the various rhetorical effects, but made original suggestions in the way of formulating principles and precepts. His assistance was consecutive and unremitting for two or three years, while I had much occasional help from Dr. Davidson of Bourtie, as well as from Mr. A. Mackie and Mr. W. C. Spence.

In the beginning of 1887, the first part was brought out, together with a supplementary or adjunct volume entitled *On Teaching English*. This last volume was intended more for teachers than for students, although it could be turned to account by them also in various ways. It re-opened and expanded at length the best modes of carrying on instruction in English, as already indicated in *Education as a Science*. A number of analyzed extracts were furnished bearing upon both the Intellectual and Emotional Qualities. The definition of Poetry was minutely overhauled.

It was in acknowledgment of these two volumes, which stopped short at the Intellectual Qualities, that Jowett wrote me as follows :—

"BALLIOL COLLEGE,
"1st May, 1887.

"DEAR PROFESSOR BAIN,

"I wish to thank you for the volumes which you have kindly sent me.

"They seem to me very interesting and well calculated for the purpose. I have read a considerable part of them with much pleasure.

"I think that Dr. Johnson was right in saying that style has greatly improved—that is in the qualities which an average writer may be expected to attain—clearness and correctness, and these may be given with great advantage by good instruction although we cannot teach men to be geniuses.

“I hope that I may have the pleasure of seeing you if at any time you are in the neighbourhood of Oxford.

“ Believe me,

“ Yours sincerely,

“ B. JOWETT.”

The scope of the volume devoted to the Intellectual Qualities is fully indicated in the preface. It was necessary to give some justification of the change of plan under which the kinds of composition, which figure so largely in the previous volume, are no longer presented in that form. A certain disappointment was felt at the omission, and a consequent preference was shown by some teachers for the original edition. It would have been quite possible for me to supply short additional manuals to develop more fully the methodical handling of the various kinds enumerated. More especially was I prepared to furnish a complete view of everything pertaining to the art of Exposition. I had also made great accumulations to illustrate the devices of Oratory, while the theory of Poetry was to be sufficiently provided for in the second part.

In this second part (published, May, 1888), the preface gave a full detail of the plan and contents, with reasons when necessary. Among the special points adduced, was the discussion of the attribute of Strength, now regarded as carrying along with it the emotional effects either of malevolent or of beneficent adjuncts. A certain allowance was made for Strength as detached from these, and a position assigned to it in that character.

The emotions of malevolence were pressed into the service of poetic art more than they had ever been previously. This necessarily introduced a contentious element into the work, which was not left unnoticed by critics, without, however, being seriously impugned. The explanation of the ludicrous, which had resisted every other attempt, was now undertaken under fresh auspices. In like manner, the pleasures of tragedy, otherwise paradoxical, could, it was believed, be reconciled to laws of our mental working.

The method of proceeding by the line-by-line and word-by-word analysis of passages was vindicated by authority, and carried out as in the old *Rhetoric*. Its vulnerable side was the apparent absurdity of resolving the effect of a poetic stroke into the emotional meanings of the individual words. Although it would be easy to carry this process too far, its legitimacy could be established on the mere ground of its being impossible to avoid the process in ordinary reading; there is no other way of feeling the effect of a combination of words than by interpreting their several meanings as presented to the eye or the ear. The final difficulty of art explanation lies in the cumulative result, which embodies the harmonious co-operation in a manner only partly assignable. This is that inexplicable residue of the æsthetic pleasure which analysis may approach but cannot always conquer. The so-called theme of a musical performance, the characteristic stroke of melody or of harmony making up the unit of the work, is an ultimate and irreducible effect. It is the central stroke of the musician's invention, worked up and repeated in a sustained composition, as all the world knows. To give birth to an original unit of melody or harmony emulating or even surpassing the greatest of those already achieved, and exercising their power and working their inexplicable charm, is the aim of musical genius. The "Lost Chord" of Sullivan is an exhibition

of the capabilities of a musical strain at the utmost pitch of invention, or, as it might be otherwise expressed, "the undiscovered theme".

At the Aristotelian Society, on the 7th of May, a symposium was held on the distinction between Will and Desire,—in which I contributed one of the papers fully stating all the points that seemed involved in the clearing up of the distinction.

The theory of the Will had to be clearly expressed, leaving out its ultimate foundations and supposed development in the course of education. The difference between voluntary action without a break between feeling and the act and the cases of delayed or postponed action had to be duly dwelt upon; involving a distinction between resolution with the power of actual achievement, and desire proper as typified by the unattainable.

On the 28th of May, I read a paper on "The Definition of the Subject Sciences with a view to their Demarcation". I had several different objects in view in the preparation of this paper. One was to distribute in the most advantageous manner the topics coming under the head of subject sciences under their recognized departments—Psychology, Logic, Ethics, Metaphysics. Another was to settle the definition in every case by drawing the best line between each and the one in closest alliance with it. The avowed purpose of the whole was to assign the proper contents of the departments severally named Metaphysics, Philosophy, Epistemology.

Under the couple Psychology-Ethics, the question was raised as to whether Ethics in reality fulfilled its pretended object of investigating and inculcating moral and social duties. The point of departure here was the *Protagoras* of Plato, which, for the first time, referred moral teaching to the discipline of the family and the state as its primary and perennial fountain—a portion of Plato signally overlooked by subsequent writers on Ethics. It was maintained that the real importance attached to Ethics, in its innumerable embodiments, could be accounted for only by its bearings on Theology. This position was discussed at considerable length, and may be called my last word on Ethics.

The final issue as to the contents of Philosophy led to an enumeration of matters suitable to be isolated and embraced in this department, and further led to an inquiry as to the bearings of Theism upon the entire group thus isolated.

I thought it worth while to append to the article a note upon the meanings of the term Philosophy, and especially its modern usage as applied to physical science as well as to morals and metaphysics. The use of the designation in reference to university teaching in this country had some important bearings on the application of the word.

I was invited, at the instance of Mr. Cattell, to go down to Cambridge and re-deliver the paper in St. John's College, before the Ethical Society, under the presidency of Mr. Henry Sidgwick. It was attentively listened to, but neither there nor at the Aristotelian was there any attempt to criticize its positions.

While in London, I attended a meeting in

Willis's Rooms, on the 25th of June, to confer upon the Population Question. A number of persons had formed themselves into a Society for holding consultations on this question. Their purpose was to bring together those that were in favour of the Malthusian view, and to deliberate on the most advantageous means of securing the full discussion of the question, and to ascertain how best to press its acceptance on the community. The Hon. Norman Grosvenor, of the Westminster family, became president of the Society, and occupied the chair at the meeting in Willis's Rooms.

Among those who took part at the meeting was Surgeon-General Robert Harvey, son of Professor Harvey of Aberdeen, who holds¹ a high office in the Army Medical Staff of Calcutta. He opened the proceedings by a paper on the merits of the question, which was vigorously argued and expressed. Although the meeting was avowedly constituted of those that had made up their minds on the subject, as might have been expected, there were not wanting those that came for the purpose of counter-arguing the Malthusian view. The most prominent of the latter class was Dr. Alfred Carpenter, who became so heated in denouncing Malthusianism that he had to be called to order and set down. A London clergyman took part on the side that the meeting was called to maintain, with only some objections in detail. Professor Ray Lankester made a telling speech in answer to physiological objections brought by Dr. Carpenter and others. I had to make a speech in explanation of the course of my own opinions, which dated from the reading of Malthus on

¹ Since deceased.—[ED.].

population many years before. The importance I attached to Malthus's book as marking a great epoch in the physical prosperity of mankind was received with murmurs of dissent by a certain number, and there the matter ended. In the subsequent proceedings of the Society, I had no opportunity of taking part.

In the month of August, occurred the grand political demonstration connected with the Irish Crimes Bill. Meetings took place in Aberdeen—one in the Palace Hotel, at a luncheon, when Sir John Clark was in the chair, and where addresses were given by Bryce and Sullivan. This was the last occasion that I had for making a political speech. I chimed in with the others on the Irish Home Rule cause.

Dr. J. F. White's term of office as Assessor to the General Council of the University expired in October; and an opposition was organized against his re-election, the candidate chosen being the Rev. Mr. Smith of Newhills. This occupied two or three weeks of agitation, and ended in the election of Smith.

Session 1888-89, and Recess following.

This year and the following I gave contributions to *Alma Mater*, our University magazine.

The first was in January and February, in three parts, consisting of a discussion of the proper province of English Literature. The point of it was to distinguish works of

celebrated authors whose merit lay exclusively in the subject-matter, from others valued wholly or partly for their style. The writings of Sir Isaac Newton, John Locke, and Bishop Butler—almost always mentioned in histories of Literature—should not strictly be so included, but find their place in the history of the several branches of knowledge that they refer to.

The retirement of Professor Brazier from the Chair of Chemistry led to a contribution extending over three numbers in October and November, on the history of chemical teaching in Aberdeen. It was mainly through my acquaintance with Thomas Clark, and the facts and incidents obtained verbally from him, that I was able to impart any novelty to the narrative.

I was led to put in print my recollections of Dr. Knight, professor of Natural Philosophy in Marischal College, through the circumstance that no proper biography, or, indeed, none at all, had as yet been given of him. He had left behind him a large quantity of MSS. relating to the history of Marischal College and to the incidents of his own connexion with it, while nothing had been done to work these up so as to set forth his own career and remarkable individuality. What I undertook was simply to furnish my own recollections as material to be employed by any future biographer.

Having had an application from Auberon Herbert to contribute to a volume he was about to

publish on the injurious pressure of examinations, I had to prepare a statement of views on the subject, and had to counter-argue what I considered the extreme position he had taken up on the matter. The paper appeared in his published volume, with the omission of what I regarded as an essential part of the argument.

We went to London in January (1889), and saw Robertson as usual, but did not stay in his house. I had discussed with him, in the previous year, the preparation of a statement and defence of the Empiricist position, which had been frequently adverted to and misconceived by writers in *Mind*, as well as others. He was decidedly of opinion that a paper should be drawn up such as to do justice to our common views on the whole subject. This had been my chief writing occupation in the autumn of 1888. It was read at the Aristotelian Society, on the 21st January, 1889. The discussion in the Society had no serious import; it being scarcely to be expected that the members could offer an effective criticism on the spur of the moment to such a large number of vital questions. The paper appeared in the July number of *Mind*.

The proper position of Experience as the real source of our knowledge had first to be cleared up. The old antithesis of the innate and the experiential is hardly suitable at the present time; and the nearest approach to an indi-

cation of the points at issue was given by making the question turn not upon origin, but upon *validity*.

The first topic developed was what is commonly meant by Epistemology, as being the prime origin of knowledge, regarded as either individual or general. A still more extensive discussion had to be expended upon the Uniformity of Nature, taken, of course, in regard to the source of its validity.

The great Perception question is disposed of in the manner already adopted in previous handlings of the difficulty. The antithesis of Thought and Reality expressed under a variety of synonyms is minutely overhauled. The propriety of the different contrasting designations is successively canvassed, and the conclusion reached is that there is but one genuine issue traceable,—namely, what is signified under the couplings, Relative—Absolute, Knowable—Unknowable, when these are brought within the limits of actual human interest.

The chief point omitted, as passing the limits of the paper, is the building up of the Subject, otherwise expressed as “Personality,” from *a posteriori* elements, as with the notions of Space, Time, and Cause. An attempt of this nature was subsequently made in a paper on the “Definition and Problems of Consciousness” (*Mind*, July, 1894).

I left for London on the 22nd of April. On the 17th of May, I paid a visit to Dr. Tylor at Oxford, and saw through his museum, dining at his house with a large party of Oxford men. I remained in London for five weeks.

During these five weeks, I attended two meetings of the Aristotelian Society; one being occupied with a paper on “The Psychology of Sport and Play,” by A. M. Ogilvie (May 13),

and the other by G. F. Stout (May 27), on "The development of the Distinction between the Physical and the Mental, considered from the Psychological point of view". In regard to the first paper, I endeavoured to widen the scope of the illustration by adducing various elements not recognized in the paper.

Dr. G. J. Stoney had given notice to the Society of a paper entitled "The Nature of Force," to be made the subject of a symposium, in which he desired me to take a part. Unfortunately, the date that suited his convenience (June 17) did not suit mine, as I was then absent from London. However, having been provided with a copy of his paper, I wrote my own observations upon it, and these were read at the meeting. I was now suffering from very great nervous exhaustion, and the composition of the paper was accomplished with no small difficulty.

On the 30th of May, we left London for Paris, on the way to Vichy, for the sake of the waters. Here we stayed for three weeks, within constant sight of the Puy-de-Dôme, celebrated in Science as well as in Geography. For my own part, I had no choice in the matter of treatment but to take the baths regularly provided, which were all tepid, as well as impregnated with saline constituents. I had little reason to suppose that such treatment

would give me the bracing that I required ; but we made the most of the place, driving about in the surrounding country. On the way home, we stayed at Paris some days, and saw the huge exhibition of that year. Arriving in London on the 25th of June, I consulted Dr. James Anderson, and was assured that there was nothing seriously the matter with me, and that the nervous symptoms were merely want of tone. It was after this assurance that I gave my consent to Hunter and Bryce to be nominated as one of the Commission to be appointed in the Universities Bill then going through Committee in the House of Commons.

The following insertion was made in the two local papers :—

“ Dr. Bain desires us to state, with reference to the discussion in the House of Commons on the propriety of including him in the Universities Commission, that he has been for some time pressed by both the city members to allow his name to be proposed, but held back from dread of the fatigue of so many Edinburgh journeys, with his advanced years and not strong health. Only when Government’s seemingly final list was submitted, without a single man that could, by possibility, have the means of knowing our system, past and present, was his reluctance overcome. It was not merely that such a Commission could hardly help being unjust to Aberdeen in the scramble of interests, but because the misunderstandings that would arise, with no one to correct on the spot, must lead to a waste of time in correspondence and deputations, and be otherwise injurious.”

It was on the 17th and 25th of July that the debates and divisions on the Commission took place ; Mr. Hunter's motion being defeated by large majorities. It was a fortunate circumstance that the appointment was not made, as, from what happened afterwards, I could not have regularly acted.

On the 3rd of July, we reached Aberdeen. In August, we had a week's excursion to Strathpeffer, Loch Maree, and Gareloch.

At the meeting of the General Council, in October, three new Assessors fell to be elected under the Universities Act. This gave rise to a good many meetings ; and consultations wherein I was more or less involved lasted for several weeks.

On the 15th of October, I went to Crieff Hydro-pathic. Early in November, I was attacked by whooping-cough and laid up for nearly two months, after which, my convalescence was protracted.

SUPPLEMENTARY CHAPTER.

1890-1903.

THE preceding chapter concludes Professor Bain's *Autobiography*. The supplementary chapter can be only a brief record of the last thirteen years of his life—from 1890 till his death in September, 1903. The period divides naturally into two epochs,—which are distinguished as before and after a temporary breakdown in his health in the summer of 1896. On recovering from the illness to which he refers in the closing words of the *Autobiography*, his health remained normal until the month of July, 1896, and he was able to continue the course of life which he had maintained since his retirement from the Chair of Logic. In his daily walks, for many years, he had almost invariably covered a distance of not less than twelve miles; but, by this time, his walking exercise was curtailed, although still amounting to nine miles a day. He had ceased to take part in public gatherings of a social character, but he enjoyed the visits and the society of his friends; while his

work, both public and private, was uninterrupted. The breakdown in his physical system, already referred to, resulted in a lowered tone during the two following years. He was never actually an invalid, but he found it necessary to readjust his habits to new conditions involving a series of experiments with varying results. His power of sleeping was affected, and this naturally led to a modification in his diet, which was arranged on a still more restricted standard than before. His intercourse with his friends had also to be considerably curtailed—a deprivation which he deplures in his notes of the period ; and, for a short time, he took less interest in public events, although any occurrence affecting the interests of the University of Aberdeen rarely failed to elicit a quick response, and he not infrequently referred with pleasure to his early academic experiences. His own carefulness and the accumulated wisdom of nearly eighty years of strictly regulated life, together with un-failing domestic attention to his needs, gradually produced a recovery from this loss of tone. It had become apparent, however, that the strain of so large an amount of walking had told unduly upon his muscular energy, and, for several years before his death, he was content with one afternoon walk, which always followed his carriage drive. By this change in his habits, he was soon

greatly relieved from severe attacks of cramp ; and, there being an improvement in his health otherwise, his interest in public affairs and in other matters revived, he read much more than he had done formerly, talked with ease and enjoyment, and welcomed the small number of friends who were still privileged to enjoy his society ; conversing freely on a wide range of topics, opening his stores of reminiscence without restraint, and indulging not infrequently in sallies of wit and humour.

1890-1896.

The years from 1890-1896 were devoted, for the most part, to academical reform, to the revision of *The Senses and the Intellect*, and to certain philosophical articles and other literary efforts, including the greater part of the *Autobiography*.

The appointment of the Scottish Universities Commission, from which he had himself been excluded by political prejudice, made University reorganization a pressing question, and Professor Bain considered it a matter of first importance to give the members of the Commission some guidance as to the feeling and wishes of the Universities themselves. This could best be done by means of the General Council ; and, on the 9th April, 1890, he moved for the appointment of a Committee " to investigate and report upon the changes desirable for increasing the efficiency of the University, in as far as the Universities Commission has the power to carry into

effect such changes". He was made Convener of this Committee, and his influence was paramount in it during the period of its operation. The subject that particularly interested him was the curriculum for degrees in Arts; and, on the 7th June, 1890, his Committee reported to the Council the suggestions that they desired to convey to the Commissioners. The report, the adoption of which was moved by the Convener in person, recommended four important changes—the introduction of Options into the curriculum, the institution of a Preliminary Examination and of a Summer Session, and the admission of women to degrees. The proposal for a summer session was little in accordance with the Convener's own views. Not only did he regret the consequent loss of professorial leisure, of which he himself had made such good use, but he regarded with grave apprehension the possibility that two winter and two summer sessions might become a frequent course in Arts. Even the three winter and three summer sessions which his report contemplated seemed not quite satisfactory, and he subsequently carried, as an amendment, the addition of the words, "while retaining the present curriculum of four winter sessions as the normal curriculum".

The four suggestions of the Committee were adopted by the Council and communicated to the Commissioners, with whose general inclinations they proved to coincide, although there arose several grave practical differences. The Committee on University Changes had, on the 15th October, 1890, been continued as a Committee on Draft Ordinances, and they met the Council with criticisms of each portion of the Commissioners' scheme as it was issued. The great struggle was waged over the famous Ordinance General No. 6—dealing with the regulations for degrees in Arts. It was discussed at a meeting of the Council held on the 19th September, 1891. Two questions roused Dr. Bain's keen interest. The first was the

problem of the proper optional subjects, and the second a difficulty of a more special character—the curriculum for Honours in Mental Philosophy. The Commissioners proposed to include among the compulsory subjects for the degree four alternatives: (a) Latin or Greek; (b) English or a modern language; (c) Logic and Metaphysics or Moral Philosophy; (d) Mathematics or Natural Philosophy. It seemed to Professor Bain most undesirable that the study of English should be reduced to the position of an alternative, and he further disapproved of the inclusion of Moral Philosophy, Mathematics, and Natural Philosophy in the list. He carried in the Committee and in the Council the following scheme of compulsory subjects—(a) English, (b) Latin or Greek or a modern language, (c) Logic and Metaphysics; but the Commission declined to modify their proposals in this direction. On the other question, the proposal to make a degree in Greek a *sine quâ non* for candidates for Honours in Mental Philosophy, he felt even more strongly, and he declined to accept “Greek or German” as a satisfactory compromise. He, therefore, disagreed with the alteration to “Greek or German” which had been recommended by the Committee, and the Council agreed, by a majority, to his amendment in favour of deleting the obnoxious clause. When the Commissioners insisted upon retaining the restriction, he urged the Council to use all possible means to prevent its final enactment. The words of the Committee’s report bear the impress of his views:—

“In the first place, provided a student can show the knowledge requisite for obtaining Honours, to inquire into the means whereby he has attained this knowledge is an unwarrantable intrusion which serves no end.

“In the second place, it is well understood that for a high knowledge, even of Greek Philosophy itself, Greek is not now indispensable. In point of fact, the modern languages are of much more value for this end. If the

study of Greek should in any way interfere with proficiency in French and German, to pursue it would make a bad bargain."

The wisdom of Professor Bain's protest has been justified by subsequent events. The Commissioners' restriction remained in force for four years; but it was productive of such disastrous results that, in 1896, they were compelled by the pressure of public opinion to make an important concession, by which a student is eligible for Honours in Mental Philosophy if he has passed a qualifying examination in the translation into English of passages from the works of Greek philosophical authors.

It would be tedious to enlarge upon the numerous points of detail in which Dr. Bain regarded the scheme of the Commissioners as capable of improvement, but one further example is valuable as illustrating his general attitude. He resented the distinction drawn by the Commissioners between the maximum salary of £800 assigned to the Aberdeen Chairs of Latin, Greek, Mathematics, and Natural Philosophy, and the maximum salary of £700 assigned to those of Logic, Moral Philosophy, English, and History. The wording of the Committee's report on this Ordinance may well have come from his own pen:—

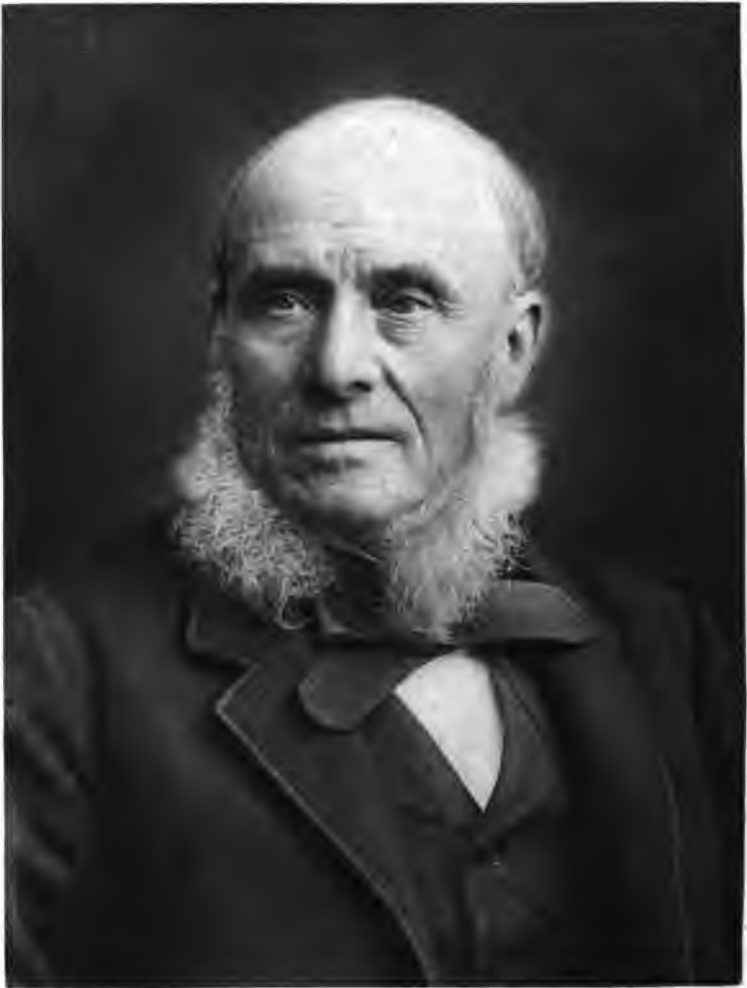
"It appears to the Committee that in the future conduct of these Chairs as determined by the Degree Ordinances, there will be nothing in the comparative laboriousness of the two sets to justify any such distinction; while if the rarity of the qualifications is considered, there will be an equal absence of any ground for the pecuniary difference. The Committee is, therefore, of opinion that in assigning the total sum allowed for these eight Arts Professors, no such difference should be made between them as is proposed. That is to say, there should be a uniform maximum of £750."

On this, as on many other points, his counsel was disregarded by the Commissioners, but he almost invari-

ably carried with him the support of the graduates of the University of Aberdeen as represented by their General Council, and, in spite of many obstacles, occasionally succeeded in influencing the amendment of the Draft Ordinances by the Commissioners. It was characteristic of him that, having been refused the place on the Commission to which he had a more obvious claim than any man who sat there, he, nevertheless, resolved to do his utmost in the service of the Universities from the humbler platform of a simple graduate. His health fortunately continued good, and he exerted himself to the uttermost, attending meetings of the Committee and the Council with almost perfect regularity. His last appearance in the Council was, very fittingly, for the purpose of moving that his Committee be not re-appointed, as the work of the Commission was by this time practically completed (15th April, 1896).

It happened that, coincidentally with the discussions consequent upon the meetings of the Commission, the University of Aberdeen was plunged into a difficult controversy by a scheme for the extension of the University buildings (December, 1891). The difficulty lay in the circumstance that there are two colleges about a mile apart, and the two strongest parties supported one or other of these alternatives—the enlargement of Marischal College or the transference of the Science Classes to King's College, where the cost of sites was a much less serious item of expense. It is needless to enter into the ramifications of the controversy, in which Dr. Bain took a very active part, both personally and as Convener of the Extension Committee of the General Council. His view was that the University Court committed a grave error in adopting one of these alternative plans without waiting until the Commission had formulated its scheme for the new curricula in Arts, Science, and Medicine, when it would be possible to offer a judgment based on the whole facts of





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the case. At a later stage, when the Commission issued a Draft Ordinance fixing the location of certain Arts Classes at King's College, Dr. Bain met the proposal with a strenuous but unsuccessful opposition, holding that "the arrangement is a matter of pure convenience, and as such should be left to the discretion of the Senatus".

In the early part of this period, two articles by Dr. Bain appeared in *Mind*; one "On Physiological Expression in Psychology," in the January number of 1891, and the other, "Pleasure and Pain," in the April number of 1892. Both were reprinted in the volume of *Dissertations*. He also made a fresh excursion into the field of biography by reminiscences of the Reverend Dr. Kidd, whose preaching had influenced him in his boyhood. These reminiscences were first published in the Aberdeen *Evening Gazette*, of 25th April and 2nd May, 1892, and afterwards reprinted in Dr. Stark's *Life of Dr. Kidd*.

From the date at which the *Autobiography* closes, Mrs. Bain's health had been very precarious, and in 1891 Dr. Bain had made his London journey by himself. In February of 1892, he and his wife were obliged to leave Crieff Hydropathic hurriedly on account of Mrs. Bain's failing state. She grew rapidly worse after her return home, and died on the 17th March, 1892. In the same year, Dr. Bain made various public appearances in Aberdeen, which may be

recounted in chronological order. The first of them, which preceded by some weeks the visit to Crieff, was at a meeting of the Aberdeen branch of the Educational Institute of Scotland, when he was presented with the Diploma of an Honorary Fellow of the Institute. In his long address on education, or, more particularly, on education in primary schools, he began by giving personal reminiscences of educational history, and then proceeded to speak of his long experience in teaching, and his having philosophized upon that experience in various forms, more especially in his *Education as a Science*, where it might seem he "had pretty well gone over the ground of the theory of education".

"There was, however," he said, "a grand omission, the mention of which may give some novelty to my present address. The omission in question is based upon one point of deficiency in my long experience as a teacher. In my very humblest beginnings in that capacity, my work assumed what may be called the collegiate form; that is to say, it consisted in giving lessons upon some particular topic, and in these being done with my pupils. I never was in the position occupied by many of you, namely, to have to carry on a school in all its departments so as to have not merely the charge of individual subjects, but the adjustment of the whole to suit the requirements of the pupils. I could not even trust my imagination to realize fully this position. It seemed to me that nothing less than actual experience in the work for a length of time could qualify any one to say with

confidence how many and what things it was possible to include in a course of school training for the pupils at the stage usually implied in our primary schools."

Then, after referring to the new matters that are being constantly brought forward in connexion with education, and to the question how these are to be overtaken without detriment to subjects already in the field, he went on:—

"It is only of late years that even physical dietaries have been arranged upon science principles, for prisoners, for sailors, for soldiers, for paupers, all more or less compulsory, while to the self-governing individual the results have been given as suggestions for voluntary guidance. We are probably still in the same infancy of the human race as regards education dietaries. . . . The situation at the present day is something especially overpowering to contemplate. The advance of knowledge in every direction, the multiplication of topics in each single department, carried to such a length that even an antediluvian memory would break down under any one—all this leaves possibilities of disproportion, of mistaken choice, and omission of the unquestionably useful; and it becomes an exercise of judgment or prudence of the very highest order to make a suitable selection and adjustment for a very limited amount of time."

He next adverted to a related department where he had striven all his life to achieve something:—

"From my very earliest days I have been in the habit of weighing one part of a subject against another,

and one whole subject against its rivals in respect to the number of their fruitful applications. It is not enough to say of this or that department that it is useful; the question is how useful? or, as I might phrase it, how many utilities to the square inch? I have applied this to grammar, to logic, to rhetoric, to psychology, as far as lay in my power."

Later on in his address, he dwelt on the comparative worth of the physical and natural sciences :—

"It is at this moment a question with the most zealous and enlightened educationists how to indoctrinate the population at large and not merely the students of professions with certain select branches of physics or natural philosophy as being eminently prolific in their bearings upon the wants of everyday life, from whose consideration none can be exempted. Physics is a vast subject and not in all parts equally applicable in the ways suggested; nevertheless, a happy selection of topics is possible which would cover our most important utilities in personal and household management, and would rank very high under the square inch test."

After considering the relative values of the different branches of physical science, he said of the natural sciences :—

"The number of their applications to the square inch, as beside the physical sciences, is scarcely above a cypher."

Nevertheless :—

"they are the sciences of world-interest. Their sphere is the cosmos; their object is to unravel the plan of the

universe. They enable us to go out into the world with arrested gaze and to find materials for solitary cogitation and social interest in a region of things that does little or nothing for physical wants."

He concluded with the following remarks:—

"You will now be asking what is the drift of this elaborate attempt to pit against each other the physical and the natural sciences. The only answer is to indicate the choice or preference in the programme of the school with limited time and means. For this purpose you should call things by their right names, and value each subject according to its actual fruits. I presume that stress must first be laid upon the primary utilities, the necessaries of a healthy existence. If these are provided for and space remains, then enter upon the luxurious, the noble, the soul-satisfying in the highest degree. . . . I have not yet done full justice to the physical sciences in exclusively confining my remarks to their share in the primary utilities. They too have their sphere in revealing the great laws of the cosmos, the ruling principles of mundane government as exhibited both in the terrestrial and in the celestial regions. These branches already quoted as making the fewest contributions to immediate utility still play a part in the field of the noble. I need only cite the example of astronomy as in itself a vast theme of world-interest while of comparatively limited practical utility—I mean limited in range, not in importance. The great art of navigation reposes upon only a very small portion of astronomical study; and for the everyday wants and management of life the applications are simply nothing to the square inch. Yet, of all the sciences I have had to study in the course of my life, none has given me a greater degree of intellectual satisfaction

than astronomy. It may well be called the noblest of the sciences."

In July, 1892, at the opening of the Aberdeen Public Library, Dr. Bain was asked to move a vote of thanks to Mr. Andrew Carnegie, and, in acknowledging Mr. Carnegie's generosity, he made certain characteristic observations, which were the only parts of his speech that he seemed to remember afterwards :—

"We have long had reason to remark the naturally sluggish character of the liberality of the public towards popular instruction by means of such institutions as our Mechanics' Libraries and classes. In almost all ages, churches and almsgiving charities have had the first place in the regard of wealthy donors. Education in every form has lagged behind these two prime objects. The founder of the Alexandrian Library would have appealed in vain to the wealthy traders and landowners of the place for a subscription in aid of that object, but might have got their help for a new temple. Even our universities have experienced only one ready flow of liberality, and that is in their character as public charities."

The interest which, for many years, Dr. Bain had shown first in the Library of the Mechanics' Institution, and afterwards in its successor, the Free Public Library, had aroused a widespread desire in Aberdeen to connect his name in some permanent way with the City Library. In the summer of 1891, he had given sittings, for a

bust, to Mr. Bain Smith, the sculptor; and a movement, originated by Mr. A. W. Robertson, then the Public Librarian, and by the late Dr. William Alexander, resulted in the purchase of the bust, by a large body of subscribers, for preservation in the Library. The presentation took place on the 26th August, 1892, and, in the course of a reply to a eulogistic speech by his neighbour, Sir William Henderson, Dr. Bain adverted to his work in a wider sphere than that of library management:—

“The subjects that I have dealt with are varied and difficult to a degree beyond what any single man ordinarily undertakes. But then, unfortunately, they are of the class of topics that in all ages have divided thinking men, and have not yet reached the point of even partial or moderate agreement. In physical science, in inventions, in the arts, a new idea is at once tested, and, if adopted, is never again forgotten; malignity and impudence are alike impotent to take away the merit of the originators. Even a barbarian inundation could not take back into forgetfulness the law of gravitation. But in the philosophy of the mind the displacement of one system by another is proverbial. All that we count upon, when we have done our best, is that some of our stones may be found to fit into the structures of our successors; and as this much needs time, the consummating of one’s reputation is necessarily postponed. Even for the present, I am far from securing unanimity of judgment among those that have taken the trouble to follow me. That I do not complain of; it is not the business of any man to bring round the whole world, or a tenth part of it, to particular conclusions on debated

questions. It is enough to have helped a number of people to draw their own inferences, and in so doing to improve upon previous knowledge."

Before the date of this presentation, Dr. Bain had spent several months in Torphins, Braemar, and Strathpeffer; and, in the end of July, he went to London to attend the International Congress of Experimental Psychology (August 2-9). There he read a paper on "The Respective Spheres and Mutual Helps of Introspection and Psychophysical Experiments in Psychology," reprinted in the *Dissertations*. He was interested in an attempt by Professor and Mrs. Sidgwick to establish the genuineness of spiritual communications by the logical canon of eliminating chance, but remained unconvinced, believing that the special canon was over-strained, and that credibility had first to be established according to the methods assigned for that purpose.

The death in September, 1892, of his distinguished pupil and highly valued friend, Professor George Croom Robertson, was a severe blow to Dr. Bain. He afterwards wrote a brief life of Robertson, which first appeared in *Mind* for January, 1893, and was ultimately prefixed to the volume of Robertson's *Philosophical Remains*, edited by Professor Bain and Mr. T. Whittaker. A few months later occurred the

death of another distinguished pupil, Professor Minto, who had succeeded Dr. Bain at Aberdeen in the Chair of Logic and English. This, too, was a severe stroke.

On the 14th April, 1893, Professor Bain married by civil contract, as his second wife, Miss Barbara Forbes, Banff, whose devoted care was an important factor in his recovery from his failure of health three years later, and of whom, in one of his notes, he says, "by whose aid I was able to expedite the completion of the *Autobiography*, as well as other works that came into my hands".

Soon after, along with Mrs. Bain, he paid his last visit to London, when he arranged with Sir Leslie Stephen about the publication of Robertson's *Philosophical Remains*. During his stay in London, it was a pleasure to him to meet and converse with various old friends, and with such former pupils as Dr. Hunter, then M.P. for North Aberdeen, Professor Murison, and Dr. David Ferrier.

His earliest piece of work in the following year was "Notes on the House of Lords Question," which was printed in the *Aberdeen Free Press*. It was on lines which he, as a Philosophical Radical and strong opponent of the hereditary principle, had repeatedly advocated, although only

now publicly; and it contemplated the ultimate extinction of the Upper House in its present hereditary form.

In the July number of *Mind* appeared his article, "Definition and Problems of Consciousness" (reprinted in the *Dissertations*). By this last contribution to *Mind*—of which he had ceased to be proprietor in the end of 1891—he severed his literary connexion with the journal that he founded, and so generously maintained, for sixteen years, at his own cost.

He spoke in public in Aberdeen on two occasions this year; the first in the autumn and the second in the winter. The latter occasion was a meeting of the Aberdeen Philosophical Society, when he gave an extempore and appreciative speech upon a lecture on "The Phonograph," delivered by Professor McKendrick, of Glasgow. The former occasion was the opening of the Ferryhill Bowling Green—a ceremony performed by himself. His speech naturally philosophized on sports. As might be expected, it was so far condemnatory and so far laudatory. In the second part of it, he said:—

"With all the disadvantages of the situation, the race or contest in its hundred forms is bound to pervade our recreative avocations no less than our worldly pursuits. . . . After thus assuming the pleasurable results accruing from our more active sports, we have to

expose them to the lurid light of the moralist as the guardian of our welfare, who descants upon their intellectual and moral bearings without, at the same time, denying that they supply a want and serve a purpose in the economy of life. Intellectually, sport and exercise are the preservative and ballast required for severe mental strain. Experience seems to have shown that the higher intellectual natures derive no small benefit from even the exciting sports. It is not many of such that are content with simple walking exercise—with no competition but the mile-stones on the road—however much is to be said of a mode of exercise so cheap and available.”

Again :—

“It is generally admitted that their salutary effect does not extend to all. A certain number of youths in every one of our great centres think of sport mainly and of study slightly. I cannot say that I have been able, with any satisfaction, to hear of the numerous athletic contests of our academic youth. I make them welcome to their own views, but decline to express my individual concurrence.”

Finally, alluding to the particular game on which he had, as he put it, to “pronounce the benediction,” he said :—

“The interest of the bowling green is, I conceive, happily balanced and moderated, selecting as it does some of our most natural tastes, and carrying none to injurious extremes”.

It was in 1894 that he issued a fourth and completely revised edition of his first great work,

The Senses and the Intellect. The work had now stood the test of public criticism for almost forty years, and the author, in acknowledging assistance in the physiological portions, expressed his confidence, after the lapse of so many years, in the value of physiological exposition in a work on psychology :—

“ My conviction of the propriety of bringing these topics before the student, notwithstanding the adverse opinion of many, has been strengthened rather than otherwise. It is not merely that the definitions and the doctrines of physiology have a direct application, and that their absence would make psychology poorer in its own province—it is, further, that the expression of mental states is, in many ways, aided by reference to their physical adjuncts. Even when such adjuncts are so imperfectly known as to have only a hypothetical rendering, the mention of them is still valuable in improving our scanty resources of subjective delineation. Perhaps, it may be said that the student should refer to works of anatomy and physiology for this special instruction—which is quite true. At the same time, the including of a suitable physiological selection in a treatise of psychology proper has high expository value.”

While adhering to his main points of doctrine, he was constantly prepared to avail himself of fresh light from any quarter, and to modify his conclusions in accordance with it. The theory of Biological Evolution was some years later in date than the positions advanced in the first edition of *The Senses and the Intel-*

lect, and the most important alterations were, naturally, made from this point of view :—

“The supposed origination of our mental products, known to us only in their maturity, has entered largely into psychological inquiry. Whether certain fundamental conceptions—such as Space, Time, Cause, the Moral Sense, the Ego or Personality—are instinctive, or grow out of experience and education, has long been the battle-ground of the philosophy of mind. The controversy may have a somewhat factitious importance ; at all events, it is regarded with more than merely speculative curiosity. The argumentative treatment, however, has assumed a new aspect from the doctrine of evolution, taken in the guarded form of the hereditary transmission of foregone aptitudes or acquirements. Instead of Kant’s contention that the notion of Space, as a ‘form of thought,’ is prior to any experience on the part of each individual, the question now is, whether or not we possess at birth a large contribution towards the full realizing of the three dimensions of the extended world. Such a mode of looking at the problem changes the whole character of the research into origins ; depriving us of the right to define the absolute commencement of any of the great fundamental notions, and leaving us merely to watch their accessions of growth within the sphere of our observation, and to reason by analogy as to their probable course or manner of growth before entering that sphere. It may, however, be still argued, without fear of rejoinder, that experience or acquisition is the remote genesis of what transcends our available sources of knowledge. The qualifications introduced in the present edition of this work, having reference to experience as opposed to instinct, have taken shape in accordance with the leading hypothesis above sketched.”

In the course of the next two years of Professor Bain's life, he worked at the *Autobiography*, and he made valued contributions, involving considerable research, to Dr. Joseph Ogilvie's *Professor John Cruickshank, LL.D.* This was his tribute to one for whom he had the highest regard and to whom he owed so much in earlier days.

After 1893, Dr. Bain's summer and autumn visits were confined to Scotland, partly to the south—Edinburgh, Glasgow and the Clyde, Dunblane Hydropathic and Bridge of Allan; and partly to the north—Banff, Cullen, Dufftown, Inverurie, Strathpeffer, and Nairn. It was while at Cullen in September, 1895, that he was greatly rejoiced by the appointment of a second pupil to fill his own Chair in the University of Aberdeen.

1896-1903.

This chronicle of personal events brings us to the failure of health which began with a throat affection in July, 1896. Dr. Bain had suffered from what he thought was a very severe cold; but, judging from the after-effects, his doctor considered it must have been an attack of influenza. For some time, the only work which his strength permitted was the composition of the *Autobiography*. It was completed in the

course of a summer excursion to Dufftown in 1897, by which time there was a distinct improvement in his physical condition. The improvement was gradual but constant, and his power of sleeping returned. His last effort in philosophical work was to prepare for publication a volume of *Dissertations on Leading Philosophical Topics*, which appeared in the spring of 1903. It included the series of contributions to *Mind*, elsewhere referred to, which possessed a distinct unity of purpose from their relation to the positions maintained in *The Emotions and the Will*. When the fourth edition of that volume was published in 1899, Dr. Bain's strength did not permit of his revising it in the same thorough way as he had done *The Senses and the Intellect*, and he was obliged to be content with merely reprinting the third edition, and referring the reader to a list of articles in *Mind* containing a statement of his later views upon several topics. These articles were now collected and printed, along with the paper on "Anthropology and its Relation to the Science of Mind," read at the Aberdeen meeting of the British Association in 1885, a paper on "The Pressure of Examinations," written for Mr. Auberon Herbert's *Criticisms of a Protest Against Examinations*, and the address delivered to the Psychological Congress in 1892. The explanatory note prefixed to

the *Dissertations* was Dr. Bain's last printed utterance in his lifetime.

During these closing years, as already recounted, Dr. Bain saw only a few friends. His two old pupils, who are now his executors (Professor William L. Davidson and Mr. Alexander Mackie), called regularly at his house (Ferryhill Lodge), and were warmly received by him; while he was much pleased when he saw occasionally other old pupils or former friends living in different parts of the kingdom—notably, Professor Murison, Dr. David Duncan (Spencer's biographer), the Reverend Alexander Harper, Wishaw (who had been an early assistant), Dr. Leslie McKenzie, Edinburgh; and once a call from Professor Masson, with whom he had, so long, been on the closest terms of friendship, was a very special pleasure to him. He also much appreciated calls from Sir John Clark of Tillypronie, with whom he was in intimate and sympathetic relations. Latterly, he wrote few letters; but a letter or communication from any old friend whom he had not seen for some years was invariably a source of gratification to him. Professor Van der Wyck, of Utrecht, never failed to send him a new year's greeting; and Herbert Spencer's letters were particularly welcome. In the spring of 1903, he heard with much concern that Mr. Spencer had been confined

for months to bed. He sent him a letter in June, expressive of his deep sympathy, and Mr. Spencer's reply (dated 13th June), although necessarily brief, on account of his state of health, showed an unusual warmth of gratitude.

In the early part of the chapter, reference was made to his revived interest in public affairs. When, for the first time for many years, a commemoration of the Founders of the University of Aberdeen was held in April, 1901, he sent a letter of good wishes, which was read at the Commemoration dinner. On various occasions, letters from him were made public at the meetings of the Aberdeen Liberal Association; and, less than three months before his death, when Mr. Bryce, M.P., delivered a political address to his constituents, he much regretted that he had been prevented from writing to emphasize his adherence to Free Trade principles. His last communication on a public affair was a letter approving of the recently formed Sociological Association.

From 1896 to the time of his death, he was never able to undergo any unusual strain; yet, during the last three years of his life, he was remarkably well, and was never unfit to leave Aberdeen for a month or more in summer. From 1898, his summer residence was almost invariably on Deeside—Ballater, Banchory, and lastly Torphins.

It was while at Torphins, in July, 1903, that he began to feel pains which were at first regarded as muscular rheumatism, but which turned out to be the intense suffering caused by stoppage of circulation. The painful sensations, in the earlier stages only occasional, became, towards the end of August, much more frequent and very severe. But, so long as consciousness lasted, he bore his sufferings with great fortitude, and was solicitous for the comfort and the feelings of others, especially of Mrs. Bain. He died on the morning of the 18th September, and, three days later, was buried in Allenvale Cemetery, in ground overlooking the river Dee, and separated by two graves from the resting-place of his immediate successor, Minto. His directions were that his funeral should be private, and conducted with the utmost simplicity, and that there should be no religious service. He also expressed disapproval of a suggestion of an eulogy pronounced at his grave. Had there been a crematorium in Aberdeen, his instructions would have been to have his body cremated; but his great wish was to give as little trouble as possible. He requested that no stone should be placed upon his grave: his books, he said, would be his only monument.

APPENDIX.

FOR convenience of reference, there is appended the following list of Professor Bain's writings, prepared by Mr. P. J. Anderson, LL.B., Librarian to the University of Aberdeen.

1836. On civil and religious liberty. Speech on 22nd December at dinner to Mr. James Adam, editor of the *Aberdeen Herald*. (Printed in *Herald*; and in *Alma Mater* for 25th November, 1903.)
1838. A comparison of the styles of the principal writers of the ages of Queen Elizabeth and Queen Anne. (Unsuccessful essay for Blackwell Prize: MS. in University Library.)
- 1838-41. 13th, 14th, 15th and 16th Reports of the Mechanics' Institution, Aberdeen.
1839. Catalogue of library of Mechanics' Institution, Aberdeen. Abd.
The sin of cruelty to animals. (Unsuccessful essay for Gibson prize: MS. in University Library.)
1840. Electrotype and daguerreotype. In *Westminster Review* for September.
1841. Constitution of matter. In *Westminster Review* for July.
1842. On toys. In *Westminster Review* for January.
Admission to public places. In *Banner* of 23rd July.
1843. A system of logic by John Stuart Mill. In *Westminster Review* for May.
An attempt to generalise and trace to one sole cause—*viz.*, the liberation of latent heat—all cases of terrestrial heat. Aberdeen Philos. Soc., 6th January.
On a new classification of the sciences. Aberdeen Philos. Soc., 1st December.

1844. On the definition and classification of the human senses. Aberdeen Philos. Soc., 9th December.
1845. On the impediments to the progress of truth arising from the abuse of language. (Successful essay for Blackwell Prize : MS. in University Library.)
1846. Preservation of health. In Lowe's *Edinburgh Magazine* for April.
1847. On travelling and books of travel. In Lowe's *Edinburgh Magazine* for June.
- On the abuse of language in science and in common life. In *Fraser's Magazine* for February. (Blackwell Essay recast.)
- On Carlyle's Oliver Cromwell. In *Westminster Review* for January.
- Wit and humour. In *Westminster Review* for October.
1848. On English university education. In *Westminster Review* for July. Reprinted in pamphlet form as :—
Of a liberal education in general. Lond.
- On the applications of science to human health and well-being. Lond.
- Oken's Physio-philosophy. In *Chambers's Journal* for 5th February.
- The scholastic logic. In *Chambers's Journal* for 11th March.
- Astronomy. (*Chambers's Educational course.*) Edinb.
- Electricity. (Do. do.) Edinb.
1849. Meteorology. (Do. do.) Edinb.
- Articles on Language, Logic, Human Mind, Rhetoric in *Chambers's Information for the People*. Vol. 2. Edinb.
1850. Sydney Smith's Moral philosophy. In *Chambers's Journal* for 15th June.
- Baron Reichenbach's Researches. In *Chambers's Journal* for 20th July and 3rd August.
- Education of the citizen, Recent discoveries in Astronomy, Everyday life of the Greeks, Religion of the Greeks, Water supply of towns, Animal instincts and intelligence, What is philosophy? In *Chambers's Papers for the People*. Edinb.

1852. Paley's Moral philosophy, edited with dissertations and notes. (*Chambers's Instructive and Entertaining Library.*) Edinb.
- 185 . Dr. Clark's Spelling reform. Abd.
1855. The senses and the intellect. Lond.
1859. The emotions and the will. Lond.
- 1860-68. Articles on Logic, Psychology, etc., in *Chambers's Encyclopædia*.
1860. Phrenology and psychology. In *Fraser's Magazine* for May.
 The propensities according to phrenology examined. In *Fraser's Magazine* for September.
 The sentiments according to phrenology examined. Part I. In *Fraser's Magazine* for November.
 The position and province of logic. Introductory address, 6th November. (Printed in *Aberdeen Free Press*.)
1861. The sentiments according to phrenology examined. Part II. In *Fraser's Magazine* for February.
 The intellectual faculties according to phrenology examined. In *Fraser's Magazine* for June.
 On the study of character, including an estimate of phrenology. Lond.
 English extracts. (For use in class. No title. See also 1866.)
 Outline chart of English grammar. (For use in class.)
1863. An English grammar. Second edition, 1866. (See also 1872.) Lond.
 Methods of debate, an Address to Aberdeen University Debating Society. Abd.
1864. On the physical accompaniments of mind. Aberdeen Philos. Soc., 1st April, 18th November (and 10th March, 1865).
 The senses and the intellect. Second edition. Lond.
1865. The emotions and the will. Second edition. Lond.
 Grote's Plato: the Negative or search Dialogues. In *Macmillan's Magazine* for July.
 Grote's Plato: the Affirmative or exposition Dialogues. In *Macmillan's Magazine* for October.

1865. A Letter to Mr. Westerton, Chairman of Mr. (John Stuart) Mill's (Parliamentary Election) Committee. Lond.
1866. English composition and rhetoric, a manual. (See also 1887-8.) Lond.
 English extracts: supplementary to a Manual of English composition and rhetoric. Lond. New series, Prose, 1870. New series, Prose, 1876. New series, Poetry, 1878.
- On early philosophy. Aberdeen Mechanics' Inst., 15th January.
- On some disputed points of English grammar. Aberdeen Philos. Soc., 13th April.
- The feelings and the will viewed physiologically. In *Fortnightly Review* for January.
- The intellect viewed physiologically. In *Fortnightly Review* for February. (This and the preceding article have been translated into Russian, and published in pamphlet form. See British Museum Catalogue, s.v. Bain.)
- A historical view of the theories of the soul. In *Fortnightly Review* for May.
- On early philosophy. In *Macmillan's Magazine* for June.
1867. On the correlation of force in relation to mind. In *Macmillan's Magazine* for September.
- On the retentive power of the mind, with reference to education. Aberdeen Philos. Soc., 8th November.
1868. On teaching English. Aberdeen Philos. Soc., 13th November.
- Mental and moral science: a compendium of psychology and ethics. (See also 1872.) Lond.
- The senses and the intellect. Third edition. Lond.
 Has been translated as under:—
 Les sens et l'intelligence. Trans. by E. Cazelles. Paris, 1873. Second edition, 1889.
- Memoir of Thomas Clark, M.D. In *Journal of Chemical Society*. (See also 1884.)
- Common errors on the mind. In *Fortnightly Review* for August. (Reprinted in *Practical Essays*, 1884, and translated into French; see under 1872, Mind and Body.)

1868. The retentive power of the mind in its bearing on education. In *Fortnightly Review* for September.
Mystery and other violations of relativity. In *Fortnightly Review* for October. (Reprinted in *Practical Essays*, 1884, as "Errors of suppressed correlatives".)
1869. James Mill's Analysis of the human mind. Edited with notes. 2 vols. Lond.
Note on Dr. Bastian's paper "On the physiology of thinking". In *Fortnightly Review* for April.
On teaching English. In *Fortnightly Review* for August.
1870. Logic. Part I., Deduction. Lond.
Logic. Part II., Induction. Lond.
Has been translated as under :—
Logique déductive et inductive. Trans. by Gabriel Compayré. 2 vols. Paris, 1875.
1871. On some leading principles in education. Aberdeen Philos. Soc., 7th March.
Obituary notice of George Grote. In *Proceedings of the Royal Society*, vol. 20, pp. iii-xi.
1872. A higher English grammar. Lond.
A first English grammar. Lond.
Key to first English grammar. Lond.
Mind and body : the theories of their relation. (International Scientific Series, No. IV.) Lond. Now in eighth edition, but these editions are simply fresh impressions from stereotype plates. Has been translated as under :—
L'esprit et le corps. Trans. by William Battier. Paris, 1874.
Geist und Körper. Trans. by ? . Leipzig, 1874.
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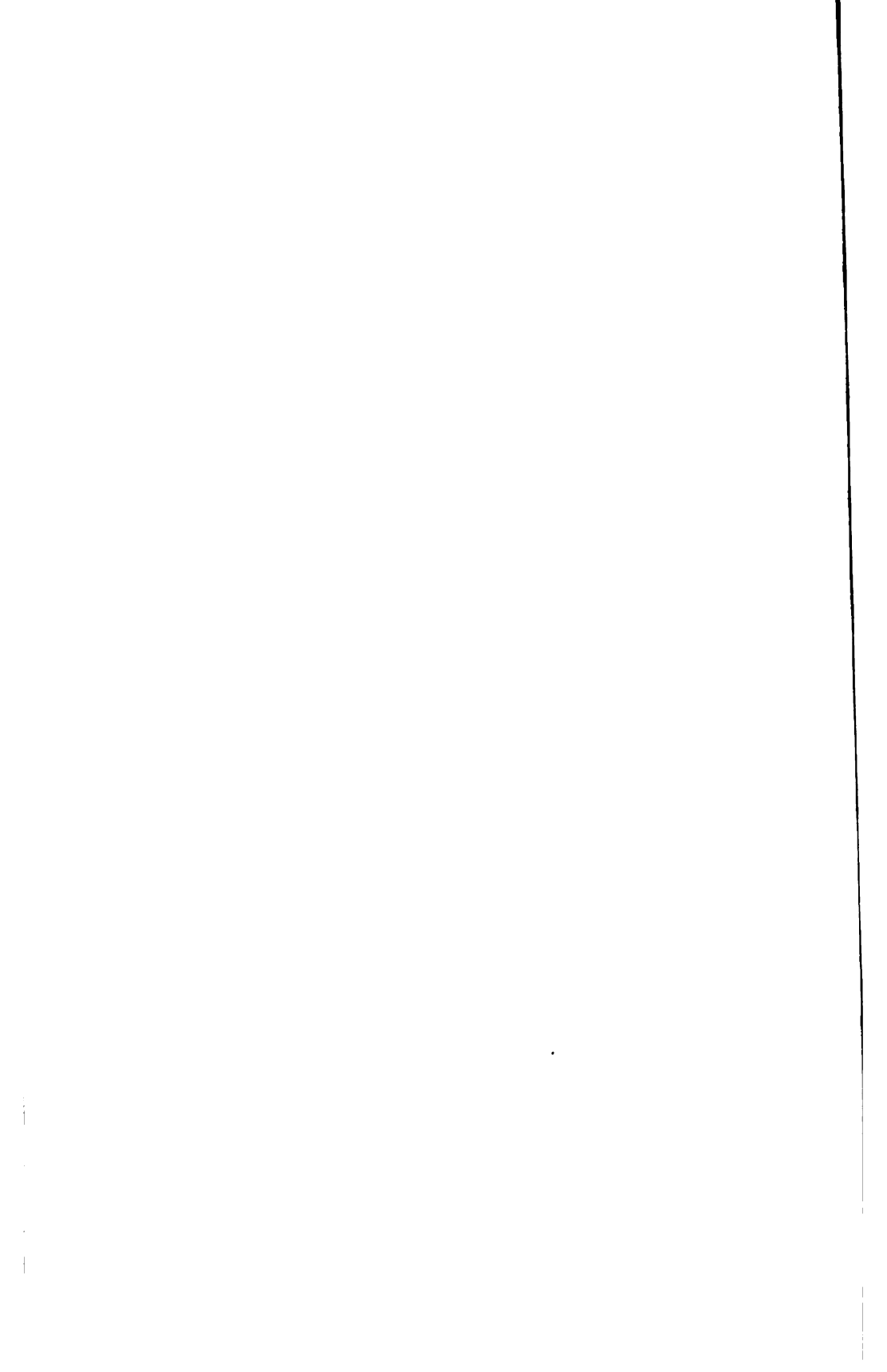
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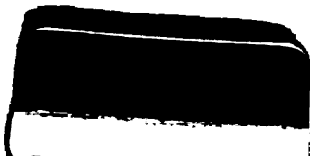
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